

FLIGHT

First Aero Weekly in the World.

Founder and Editor : STANLEY SPOONER.

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport.

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TO OUR READERS.

The Supply of "FLIGHT." Important Notice.

Order "FLIGHT" to be either delivered or reserved for you regularly.

As the demand for "FLIGHT" is so great each week, it is of the utmost importance that readers should place their orders *firmly* for copies of "FLIGHT" at the bookstalls, their newsagents, or direct from the publishers, at 44, St. Martin's Lane, W.C., if they wish to secure a copy every week and avoid disappointment. The stringent Government restrictions in regard to the supply of printing paper necessitates this precaution in order that only actual numbers required are printed, and all wastage by unsold copies may thereby be reduced to a minimum, if not eliminated.

THE PUBLISHERS.

EDITORIAL COMMENT.



JUSTIFYING note of his views appears in our Correspondence column this week from Mr. Prevost Battersby, in reply to our editorial comments a fortnight back, upon his Counsel of Perfection, to be attainable by the total suppression of flying after the present war has run its course.

Whilst repeating the fact that we have the very highest admiration for Mr. Battersby's journalistic work notably in connection with the trench work of the British and our Allies, and that we in every way sympathise with the high human ideals which he has

The Banning of Aerial Navigation.

set out to engender in the civilised nations, we are afraid his present communication carries us no further, any more than his letter to the *Observer* of August 20th supplied a point which, followed to its finality, could be said to carry conviction with it, as to the possibility of his views being accepted. As we have already stated, human nature is the crux of the whole business, and so long as that very mixed quantity remains at its present standard there can be not the remotest hope of such a far-reaching and vital weapon as aerial navigation being ruled out of consideration as a factor in any future conflict between nations which the world will have to suffer in the life of coming generations. Its very effectiveness to inflict dire mischief and swift disaster upon the enemy, will be ever the justification for its elaboration by those very barbarians whose uncivilised and unlawful use of it in war is the main cause of Mr. Battersby's campaign for its suppression. What we claim is that whatever laws, international or otherwise, are made, they would be unhesitatingly trampled upon by Germany the moment it suited her. Of this self-evident fact the civilised world has had, we think, over-sufficient and convincing evidence during the past two years. For example, take Mr. Battersby's own point as to the banning of explosive bullets by international agreement. Germany, by authoritative accounts to hand, has not hesitated to employ these, not only in the African campaigns, but also against her European enemies. Again, there is the initial and great crime of all, the sacredness of Belgium's neutrality, which was solemnly agreed to, but blatantly violated the moment occasion arose to the presumed advantage of Germany. As to the suggestion of our correspondent, in support of the possibility of his argument being sound, that if we used

our knowledge to spread bubonic plague or any other pestilence through the Central Powers, an emphatic protest, not to say action, would be made by the United States, we do not doubt that such protest would be promptly forthcoming against Great Britain. It is a little weakness the President has, although, if their official action were the same as in the case of the Central Powers, the chances are that we should hear nothing about even so ghastly a crime as that.

The crux of the whole question, therefore, resolves itself into the remote possibility—not probability—of the germanic barbarian respecting even in the smallest iota any undertaking or convention to which the Kaiser's Government may subscribe its support. What value can be attached to the Hun beast's word of honour, in the individual German and in official circles, has just been again brought into prominence in America itself, wherefrom the setting right of everything in the world is to emanate. This little matter of where a German's "word of honour" stands is well summarised in the following extract from a New York correspondent's telegram last week to one of our leading morning papers. He says :—

"Germany's 'word of honour' is the topic of much ironical and bitter comment in the American Press. It arose from the statement of Herr Zimmermann, Germany's Foreign Under-Secretary, who explained to Mr. Gerard that the fourteen members of the crews of the interned ships 'Kronprinz Wilhelm' and the 'Eitel Friedrich,' who broke their parole and escaped from American custody, are really honourable citizens; they merely considered that the 'pledge they gave was not precisely the same as their word of honour.'

"Apart from the discussion, which leaves a disagreeable impression upon Americans regarding the untrustworthiness of Germans, the chief result attained here by the flight of the fourteen 'honourable' citizens is the enforcement of strict regulations regarding those still interned, not to forget the photographing of prisoners, against which Count Bernstorff once objected, on the ground that a German officer's word was as good as his bond, and that such photographing 'would be a disgrace to Germany.'

Is it likely, therefore, that the world's civilised nations, with the experience which has cost us and our Allies so dearly, will ever allow the Central Powers such a chance to develop in secret so formidable a weapon against our nation's welfare, as the prohibition of flying in the future would invite? We

think not, and almost every argument put forward by Mr. Battersby in his letter to the *Observer*, already referred to, carries with it but a more convincing conviction than before that the only course for us to adopt is, whilst drawing the net as tight as possible on the Hun's future freedom of action in every direction, for us to be the paramount power in the air. Any other way simply leaves it to Germany to agree—and forthwith set every energy to work to equip herself for a second "Tag," which she would no doubt make a little more certain did not go astray, as has her present bid for dominion of the world's affairs. If an added testimony were required to point the German moral of German immorality, there is the Huns' "manifesto," which curiously was printed in our contemporary, side by side with Mr. Battersby's letter. From this it appears a German aviator was flying over a French town on August 5th and was seen to be throwing papers from his machine. One of these was caught by Coy. Sergt.-Major Marks, of the A.S.C., formerly organist at the parish church at Hale, Farnham, Surrey. The paper proved to be a manifesto in French addressed to the people of France. It called attention to the bombardment of towns in Germany, and went on :—

"Your aviators did not make a mistake. Chance has permitted us to know the source of these crimes. We know to-day without the least doubt that they have been committed on the express order of your Government. It is your President Poincaré himself who suggested that order, and he is not ashamed to have listened to the base instigation of the English.

"Germany makes war on the French armies, not on the civil population, on women and on children. She hopes that these explanations will suffice to prevent new barbarous attacks of this kind by the French squadrons. If it happens again Germany will find herself forced to take similar measures in order to defend herself.

"But you will know then, Frenchmen, that that slave of England, Monsieur Poincaré, will be responsible for the bloodshed of innocent victims, and that it is English barbarism which has obliged us to carry destruction and mourning into your towns far behind the front."

Comment would be superfluous in view of the facts as we know them; therefore, whilst fully appreciating the sound motives at the bottom of Mr. Battersby's counsel of perfection, we are afraid his efforts, like many another man's previously in the same direction, will be wasted in trying to beat the air in more senses than one.

Further Honours for the R.F.C.

In a supplement to the *London Gazette* issued on August 25th, it was announced that His Majesty the King has been graciously pleased to confer the Military Cross on the under-mentioned officers in recognition of their gallantry and devotion to duty in the field :—

Second Lieut. JAMES HECTOR ROSS, R.F.C., Special Reserve.

On two occasions he carried out reconnaissances at a very low altitude to determine the general situation. His machine was repeatedly hit by rifle fire, and he was severely wounded in the arm. His reports were most valuable.

Temporary Lieutenant A. H. SMITH, Lincoln Regt. and R.F.C.

For most gallant and skilful work in connection with artillery. In one instance, flying at 1,000 ft. under heavy fire, his information led to the destruction of two enemy batteries. On another occasion he flew under clouds for two hours at 600 ft., sending down information. His machine was repeatedly hit. He has set a fine example.

Lieutenant FREDERICK GEORGE ERNEST SUTTON, Can. Inf.

As Observer with Second Lieutenant Ross, he carried out two reconnaissances at very low altitude. Their machine was repeatedly hit by bullets, and the pilot was severely wounded in the arm. The reports rendered were most valuable.



Lieutenant R. H. C. USHER, Wilts. Regt. and R.F.C.

For conspicuous gallantry and devotion to duty in attacking three hostile machines and driving them off. On another occasion he fought five hostile machines, and although hit in the leg, continued to fight till his engine stopped. He succeeded under great difficulties in reaching an aerodrome, where he collapsed through loss of blood.

R.N.A.S. Raid on Airship Sheds.

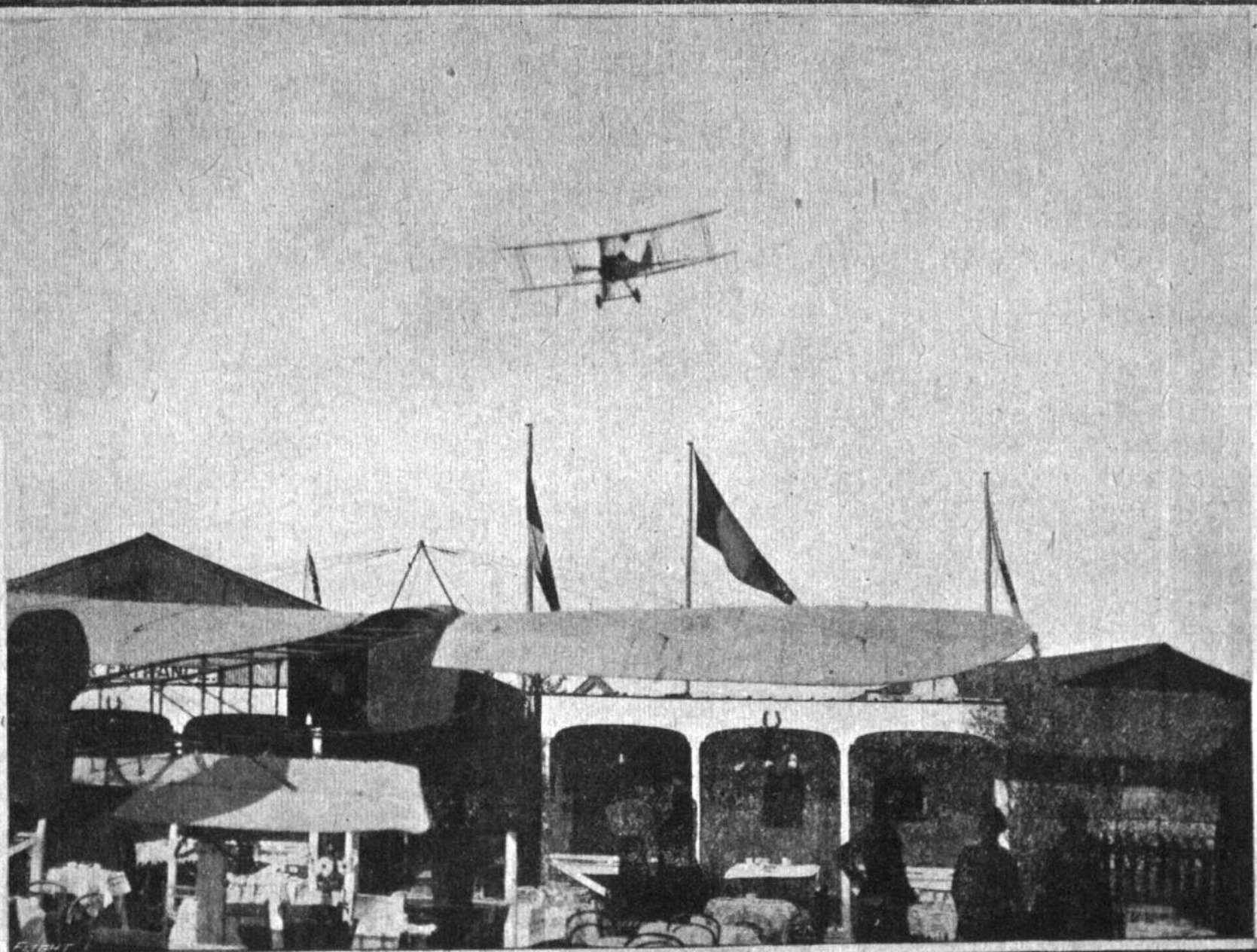
THE Admiralty issued the following announcement on August 26th :—

"Early yesterday morning (25th) an attack was carried out by naval aeroplanes upon enemy airship sheds near Namur. The sheds were successfully bombarded and two of them hit, but, due to low-lying clouds, it was not possible to observe the amount of damage done. One of our machines has failed to return."

Aviation in the States.

At last the United States appear to be waking up to the importance of aviation. Congress has voted \$13,281,666 for military aviation and \$3,500,000 for naval aeronautics, while the sum of \$200,000 has been ear-marked for the provision of a flying ground, which is to be selected by a committee of Army officers.

AUGUST 31, 1916.



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FLIGHT

AT HENDON.—In 19—, it may be that pilots will *vol plane* into Mitchell's tea gardens for the cup that cheers. The one shown was probably only on a reconnaissance trip. The Blériot, in the shade of whose wings the tables are set, is that of the late G. Lee Temple.

The British Air Service

"PER ARDUA AD ASTRA"

Under this heading are published each week the official announcements of appointments and promotions affecting the Royal Naval Air Service and the Royal Flying Corps (Military Wing) and Central Flying School. These notices are not duplicated. By way of instance, when an appointment to the Royal Naval Air Service is announced by the Admiralty it is published forthwith, but subsequently, when it appears in the LONDON GAZETTE, it is not repeated in this column.

Royal Naval Air Service.

THE following appeared among the Admiralty announcements of August 22nd :—

Probationary Flight Sub-Lieutenant (Temporary).—G. H. Porter granted a temporary commission as Sub-Lieutenant (R.N.V.R.), seniority Aug. 21st.

The following appeared among the Admiralty announcements of August 23rd :—

Air-Mechanic (1st Grade).—R. W. Berridge, entered as Probationary Flight Sub-Lieutenant (Temporary), seniority Aug. 27th.

The following appeared among the Admiralty announcements of August 24th :—

The under-mentioned have been entered as Probationary Flight Sub-Lieutenants (temporary), and all appointed to "President," for R.N.A.S., seniority as follows: F. R. Johnson, July 19th; R. A. Blyth and J. R. Allen, both July 20th; W. L. H. Pattison, E. J. Webster, J. R. Allen and W. S. Rope, all Aug. 27th; S. F. H. Herapath, Sept. 3rd.

The following appeared among the Admiralty announcements of August 25th :—

Mr. C. Saunders (O.S., R.N.V.R.) entered as Probationary Flight Sub-Lieutenant (Temporary), seniority Aug. 22nd.

The following appeared among the Admiralty announcements of August 26th :—

The under-mentioned have been entered as Probationary Flight Sub-Lieutenants for temporary service, seniority as follows: L. F. W. Smith, J. R. Booth, J. J. Malone, R. M. Keirstead, J. A. Morell and S. E. Ellis, all July 6th; and R. V. Power, Sept. 3rd.

The following appeared among the Admiralty announcements of August 28th :—

Lieut. (Canadian Engineers) N. M. Scott entered as Probationary Flight Sub-Lieutenant (temporary), seniority Aug. 27th. Mr. G. St. B. S. Watkins granted a temporary commission as Lieutenant (R.N.V.R.), seniority Aug. 26th, and appointed to "President," additional, for R.N.A.S.

The under-mentioned temporary entries have been made, seniority as follows: Lieutenants (R.N.V.R.): A. R. Dresser and H. E. Shaw, Aug. 26th; and A. J. Roberts, Aug. 30th. Sub-Lieutenants (R.N.V.R.): L. J. Rogers, Aug. 26th; and all appointed to "President," additional, for R.N.A.S.

Royal Flying Corps (Military Wing).

THE following appeared in the *London Gazette* of August 22nd :—

Squadron Commanders.—From Flight-Commanders, and to be Temporary Majors whilst so employed :—Aug. 1st,



THE KING'S RECENT VISIT TO THE FRONT.—R.N.A.S. officers being inspected by His Majesty.
(Official Press Bureau photo.)

1916: Capt. F. W. Smith, S. Mid. Brig., R.F.A. (T.F.); Capt. M. G. Christie, Special Reserve; Temporary Capt. E. D. Horsfall, General List; Second Lieut. (Temporary Capt.) R. G. Blomfield, 5th D. Gds.; Lieut. (Temporary Capt.) L. A. Pattinson, R. Fus.; Capt. H. R. Nicholl, Special Reserve; Second Lieut. (Temporary Capt.) A. T. Whitelock, Special Reserve.

Flight-Commanders (from Flying Officers, and to be Temporary Captains whilst so employed).—Aug. 1st, 1916: Lieut. C. D. Fuller, Special Reserve; Lieut. A. C. Horsbrugh, Special Reserve; Lieut. A. G. L. J. Miller, I. Gds.; Lieut. D. C. Rutter, R. Suss. R., Special Reserve; Lieut. C. F. Collett, Special Reserve; Temporary Lieut. A. M. Lowery, General List; Second Lieut. L. Moss, A.S.C.; Second Lieut. N. G. McNaughton, Special Reserve; Second Lieut. J. W. Jardine, from a Balloon Officer, and to be Temporary Captain whilst so employed; Second Lieut. S. G. Hodges, Wilts. R., from a Flying Officer, and to be Temporary Captain whilst so employed; Lieut. H. B. Davey, N. Staff R. (T.F.), from a Flying Officer, and to be Temporary Captain whilst so employed; Aug. 10th, 1916.

Equipment Officers.—From Assistant Equipment Officers:—July 1st, 1916: Capt. W. E. G. Statter, R. Lanc. R., Lieut. E. R. Bond, General List, and to be Temporary Captain whilst so employed; Aug. 1st, 1916: Temporary Capt. E. B. Palmer, A.S.C.; Second Lieut. C. G. Tucker, Special Reserve, and to be temporary Captain whilst so employed; Temporary Second Lieut. R. S. Witchell, General List, and to be Temporary Captain whilst so employed.

Experimental Officer (graded as an Equipment Officer).—Temporary Capt. G. M. B. Dobson, General List, from an Assistant Equipment Officer; June 2nd, 1916.

Flying Officers.—July 28th, 1916: Capt. C. L. M. Scott, N. Staff R., Special Reserve, from a Flying Officer (Observer);

Temporary Lieut. G. W. Gathergood, Durh. L.I., and to be transferred to the General List; Lieut. C. G. Beatson, Midd'x. Regt., Special Reserve, from a Flying Officer (Observer); Second Lieut. S. G. Howard, Special Reserve; Temporary Second Lieut. O. B. W. Wills, General List; Second Lieutenants, Special Reserve: J. Fairbairn, H. J. Gibson, D. E. Nicolle, G. F. Hughes. Temporary Second Lieut. P. S. Joyce, General List. July 30th, 1916: Lieut. P. C. Sherran, 26th Canadian Inf. Battn.; Second Lieut. J. B. Home-Hay, Arg. and Suth'd. Highrs (T.F.).

Assistant Equipment Officers.—Capt. E. F. Hirtzel, Welsh R., Special Reserve, and to be seconded; July 20th, 1916. July 21st, 1916: Temporary Second Lieut. M. O. Illingworth, General List. Second Lieut. W. A. Verner-Furlong, Special Reserve.

Memorandum.—Air-Mechanic J. H. P. Kither, from R.N.A.S., to be Temporary Second Lieut. for duty with R.F.C.; Aug. 8th, 1916.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: P. V. Tanner, S. A. Harding, F. J. Miller, C. F. Blunt.

A. Meyrick to be Second Lieutenant; July 27th, 1916.

To be Second Lieutenants (on probation):—Aug. 8th, 1916: E. O. Lord, A. Coningham. Aug. 10th, 1916: G. M. Turnbull, W. C. Campbell, D. T. Steeves, J. C. Rimer. Aug. 12th, 1916: H. Cockroft, J. R. F. Gubbin, J. M. Roy-Edward St. Amory, R. E. Nowell.

The following appeared in a supplement to the *London Gazette* issued on August 23rd:—

Equipment Officer.—Second Lieut. O. V. Thomas, Special Reserve, from an Assistant Equipment Officer, and to be Temporary Captain whilst so employed; July 7th, 1916.

Flying Officers.—Second Lieut. W. H. K. Copeland, City of Lond. Yeo. (T.F.); July 11th, 1916. Lieut. C. J. Brookes,



THE KING'S RECENT VISIT TO THE FRONT.—King George about to pin on decorations awarded to members of the R.N.A.S. in Belgium. (Official Press Bureau photo.)

Australian Flying Corps; July 12th, 1916. Second Lieut. (Temporary Capt.) G. O. Brunwin-Hales, Essex R. (T.F.); July 13th, 1916. Second Lieut. F. J. Miller, Special Reserve; July 14th, 1916. Second Lieut. (Temporary Lieut.) W. A. Shirlaw, High. L.I. (T.F.); July 29th, 1916. Second Lieut. W. R. B. McBain, R.F.A. (T.F.); July 30th, 1916. July 31st, 1916: Lieut. L. R. Andrews, 54th Canadian Inf. Bn.; Second Lieut. G. L. Castle, R.A., and to be seconded; Second Lieut. F. L. Royle, Yorks. L.I. (T.F.); Second Lieut. E. Laurie, Special Reserve; Temporary Second Lieut. R. G. Hornby, General List; Second Lieut. N. A. Phillips, Special Reserve; Second Lieut. P. V. Tanner, Special Reserve; Aug. 1st, 1916. The appointment of Temporary Second Lieut. L. S. Weedon, notified in the *Gazette* of July 18th, 1916, is ante-dated to June 12th, 1916. Temporary Second Lieut. T. W. L. Saunt relinquishes his appointment; Aug. 4th, 1916.

Assistant Equipment Officer.—The appointment of Second Lieut. A. C. Blackmore, notified in the *Gazette* of July 29th, 1916, is cancelled.

Adjutant.—Temporary Lieut. A. J. Child, Lond. R. (T.F.), from a Flying Officer (Observer), vice Capt. G. J. L. Stoney, Worc. R.; May 26th, 1916.

Memoranda.—Warrant and N.C.Os. to be Temporary Second Lieutenants (on probation), for duty with the R.F.C.: —July 25th, 1916: Act. Sergt.-Major D. B. Cleghorn, from R.F.C. Corp. D. Burt, from 2nd King Edward's Horse; 1st Class Air-Mechanic W. J. R. Sheppard, from R.F.C.; 2nd Class Air-Mechanic F. T. Nettleingham, from R.F.C.; 2nd Class Air-Mechanic J. W. Maddock, from R.F.C.; July 26th, 1916. Mech. Staff-Sergt. W. E. Phillips, from A.S.C.; July 30th, 1916.

Supplementary to Regular Corps.—Second Lieutenants to be Lieutenants:—Aug. 1st, 1916: H. W. Butterworth, F. Tedman, (Temporary Capt.), F. Hudson, C. H. Morgan, H. S. Ward, S. A. Laird and E. S. Bramham.

Second Lieutenants (on probation) confirmed in their rank: A. D. Spiers, J. P. Stephen, H. F. Blake, H. B. Neame, C. A. Cuthbert, E. Rivers-Smith, L. D. Russell, N. L. Godber, P. G. Emery, A. J. L. Chrystall.

H. B. T. Hawkins to be Second Lieutenant; July 25th, 1916.

To be Second Lieutenants (on probation): J. E. R. Avery; June 15th, 1916. July 31st, 1916: S. M. Baber, A. W. Grigsby, P. E. Jeffcock. Aug. 12th, 1916: W. Simmonds, G. A. Powell, R. S. L. Worsley, C. Sutton, A. W. R. Trusler, and P. G. Taylor.

The following appeared in a supplement to the *London Gazette* issued on August 24th:—

Flight-Commanders (from Flying Officers).—Second Lieut. (Temporary Lieut.) K. R. Binning, General List, and to be Temporary Captain whilst so employed; Aug. 8th, 1916. Aug. 9th, 1916: Major M. A. Black, 5th D. Gds.; Capt. A. W. Tedder, Dorset R. *From Flying Officers and to be Temporary Captains whilst so employed.*—Second Lieut. (Temporary Lieut.) A. J. M. Clarke, General List; Second Lieut. A. Goodfellow, Special Reserve; Second Lieut. R. J. Mounsey, Hamps. R.; Second Lieut. J. L. Chalmers, Special Reserve; Aug. 14th, 1916.

Experimental Officers (graded as Equipment Officers).—From Assistant Equipment Officers, and to be Temporary Captains whilst so employed; June 9th, 1916: Lieut. B. M. Jones, R.E. (T.F.); Lieut. R. B. Bourdillon, Special Reserve.

Flying Officers.—Temporary Second Lieut. R. H. Stocken, General List; July 20th, 1916. Temporary Second Lieut. G. W. Riley, Oxf. and Bucks L.I., and to be transferred to the General List; July 21st, 1916. July 26th, 1916: Second Lieut. A. Ashton, R.G.A., Special Reserve; Temporary Second Lieut. E. R. Wilkinson, Midd'x R., and to be transferred to the General List. July 27th, 1916: Lieut. G. J. Scott, R.F.A. (T.F.); Temporary Second Lieut. P. W. M. Orme, R. Suss. R., and to be transferred to the General List; Second Lieut. E. B. Rice, R. Dub. Fus., and to be seconded. July 28th, 1916: Temporary Lieut. D. B. Calderwood, R.A., and to be transferred to the General List; Temporary Lieut. H. Fowler, General List, from a Flying Officer (Observer); Second Lieut. J. D. G. MacRae, Sea. Highrs., and to be seconded; Second Lieut. W. L. Fenwick, Linc. R., and to be seconded; Temporary Second Lieut. J. Palethorpe, General List; Temporary Lieut. S. R. Stammers, General List, from a Flying Officer (Observer). Second Lieutenants, Special Reserve: C. E. Blayney, R. C. M. Smith, L. D. Russell. July 29th, 1916: Temporary Second Lieut. L. J. E. Genner, North'd Fus., and to be transferred to the General List;

Second Lieut. R. H. Johnson, R.F.A. (T.F.). July 31st, 1916: Temporary Second Lieut. E. Churcher, Rif. Brig. Second Lieutenants, Special Reserve: E. B. Macmanus, S. W. Dunkley; Capt. J. T. Waller, Leic. R., and to be seconded; Aug. 1st, 1916. Aug. 2nd, 1916: Second Lieut. L. A. Chamier, R.F.A., Special Reserve; Second Lieut. J. W. Francis, Special Reserve. Aug. 3rd, 1916: Second Lieut. H. O. S. Pilkington, Worc. R. (T.F.); Temporary Second Lieut. L. R. Wren, York. and Lanc. R.; Temporary Lieut. J. A. Stewart, K.O. Sco. Bord., and to be transferred to the General List; Second Lieut. M. J. J. G. Mare-Montembault, N. Sqm. Yeo. (T.F.). Aug. 4th, 1916: Temporary Lieut. H. W. Durnell, Welsh R., and to be transferred to the General List; Temporary Second Lieut. A. T. Hope, Suff. R., and to be transferred to the General List; Lieut. W. G. Cope, York. R., Special Reserve, and to be seconded; Temporary Second Lieut. W. A. Reeves, E. Surr. R., and to be transferred to the General List; Second Lieut. B. W. Philipps, R.G.A. (T.F.); Second Lieut. J. P. Stephen, Special Reserve. Temporary Second Lieut. G. G. Bentley, R. War. R., and to be transferred to the General List; Aug. 5th, 1916.

Assistant Equipment Officers.—Lieut. B. M. Jones, R.E. (T.F.); May 20th, 1916. Second Lieutenants, Special Reserve: C. F. Blunt; June 1st, 1916. H. F. Blake; June 23rd, 1916. E. E. Robb; July 12th, 1916. Aug. 1st, 1916: Second Lieut. P. C. Dixon, Dorset R., Special Reserve, and to be seconded; Temporary Second Lieut. W. W. Scott-Davidson, General List; Temporary Second Lieut. A. K. Hall, General List; Temporary Second Lieut. E. J. Phelps, General List. Second Lieutenants, Special Reserve: P. G. Emery; Aug. 1st, 1916. Aug. 7th, 1916: A. D. Spiers, H. R. Gillespie, N. L. Godber, P. M. E. Impey, S. Wilkinson. Temporary Second Lieut. S. T. Smith, General List. Second Lieutenants, Special Reserve: A. J. L. Chrystall; H. B. Neame; Aug. 8th, 1916.

Staff Officer, 1st Class (graded for purposes of Pay as an A.A.G.).—Major P. R. C. Groves, Shrops. L.I., and to be Temporary Lieutenant-Colonel; July 8th, 1916.

Staff Officer, 2nd Class (graded for purposes of Pay as Brigade Major).—Capt. C. Fraser, N. Staff. R.; July 8th, 1916.

Memoranda.—To be Temporary Second Lieutenants, for duty with R.F.C.:—Aug. 2nd, 1916: Cadet I. W. Parnell, from Harrow Sch. O.T.C.; L.-Corpl. J. Macgeorge, from Sedburgh Sch. O.T.C.; Corpl. D. Townshend, from R.E. (T.F.); Act. Sergt. F. Roux, from Canadian A.S.C.; L.-Corpl. C. E. Mott, from Merchant Taylors' Sch. O.T.C.; L.-Corpl. M. M. Kaizer, from Dulwich Coll. O.T.C.; L.-Corpl. C. W. Beatty, from Winchester Coll. O.T.C.; Sergt.-Maj. E. H. M. Fetch, from New Zealand Exp. Force; Pte. P. R. Monico, from Dover Coll. O.T.C.; Pte. L. R. Neville, from Inns of Court O.T.C.; L.-Corpl. F. P. Busuttill, from Hants. R. (T.F.); Gnr. S. Ellis, from Canadian Brig., Siege Art.; Pte. H. G. W. Matthews, from Inns of Court O.T.C.; Pte. B. Roxburgh-Smith, from Inns of Court O.T.C.; Corpl. F. P. Hughes, from S. African Inf.; L.-Sergt. A. J. Arkell, from Bradford Coll. O.T.C.; Corpl. A. C. Coley, from Lancing Coll. O.T.C.; Cadet C. H. Dixie, from Univ. of Lond. O.T.C.; L.-Corpl. F. W. Mathias, from Clifton Coll. O.T.C.; Corpl. G. M. Hopkins, from Oundle Sch. O.T.C.; Sergt. B. V. Gordon, from Eastbourne Coll. O.T.C.; 2nd Class Air-Mechanic A. H. Bates, from Hamps. Aircraft Parks (T.F.); L.-Corpl. T. H. Gladstone, from Oundle Sch. O.T.C.; Aug. 14th, 1916.

Second Class Air-Mechanic A. Pollock, from R.F.C., to be Temporary Second Lieut. for duty with the Mil. Wing of that Corps; July 31st, 1916.

Supplementary to Regular Corps.—Second Lieutenants (on probation) confirmed in their rank: H. R. Gillespie, E. S. Cohen, H. Straker, G. A. H. Pidcock, W. A. Verner-Furlong, F. H. Jones, A. H. Meldrum, J. W. Francis, J. Y. De La C. Elliott, S. W. Dunkley, J. A. Chown, T. E. H. Bristow.

To be Second Lieutenants (on probation):—July 31st, 1916: H. J. Robinson, P. Young, A. W. O'Q. Shire, O. B. Howell, F. G. Seabrooke, S. P. Stocks, R. M. Baird, T. A. B. Rolfe, R. T. Vernon, H. S. Counsell. Aug. 12th, 1916: S. Davis, T. Vernon, H. S. Counsell. Aug. 12th, 1916: S. Davis, G. M. Watt, H. Kirby, G. W. Dowding, W. E. Jones, G. W. Armstrong, H. T. Lydford, G. E. P. Elder.

The following appeared in the *London Gazette* of August 25th:—

Flying Officers.—Temporary Second Lieut. H. G. Bowen, D. of Corn. L.I., and to be transferred to the General List;

July 7th, 1916. Second Lieut. H. R. Lumley, Special Reserve; July 14th, 1916. July 28th, 1916: Second Lieut. (on probation) W. T. Willcox, W. York R., Special Reserve, and to be seconded. Second Lieut. W. Fraser, Special Reserve. Aug. 1st, 1916: Second Lieut. (Temporary Lieut.) M. E. Newton, Lond. R. (T.F.); Second Lieut. (on probation) V. A. Stookes, 2nd Dgs., Special Reserve, from a Flying Officer (Observer). Second Lieut. A. H. Carnt, R. E. (T.F.); Temporary Second Lieut. C. J. Marchant, Midd'x R., and to be transferred to the General List; Second Lieut. B. H. M. Jones, Special Reserve. Aug. 4th, 1916: Second Lieut. (Temporary Lieut.) A. W. F. Glenny, A.S.C., from a Flying Officer (Observer); Second Lieut. (Temporary Lieut.) C. E. Sherwin, Hamps. Fort. Engrs. (T.F.), from a Flying Officer (Observer); Second Lieut. (Temporary Lieut.) R. S. McClintock, R.F.A. (T.F.), from a Flying Officer (Observer); Temporary Second Lieut. H. H. James, General List, from a Flying Officer (Observer); Second Lieut. P. A. Byrne, R.A., and to be seconded; Second Lieut. G. A. H. Pidcock, Special Reserve; Capt. J. Cemlyn-Jones, R. W. Fus. (T.F.); Second Lieut. J. W. Tailford, Bord. R., and to be seconded. Aug. 6th, 1916: Temporary Lieut. S. H. Bird, Oxf. and Bucks L.I., and to be transferred to the General List; Temporary Second Lieut. G. C. Dell-Clarke, N. Lan. R., and to be transferred to the General List; Temporary Second Lieut. L. H. Stowell, General List. Aug. 7th, 1916: Lieut. A. L. Macnaughton, Australian Flying Corps; Second Lieut. R. H. Soundy, Lond. R. (T.F.); Second Lieut. (on probation) I. H. H. Robinson, R.G.A. (T.F.); Second Lieut. V. H. Collins, Special Reserve; Second Lieut. S. W. Taylor, Special Reserve; Aug. 8th, 1916.

Memoranda.—To be Temporary Second Lieutenants for duty with R.F.C.: Cadet A. P. Warren, from Oxf. Univ. O.T.C.; July 8th, 1916. Acting Corpl. E. B. Low, from Haileybury Coll. O.T.C.; Aug. 26th, 1916.

The following appeared in a supplement to the *London Gazette* issued on August 26th:—

Assistant Equipment Officer.—Second Lieut. A. Meyrick, Special Reserve; July 27th, 1916.

Memorandum.—Pte. R. L. Roe, from Sedbergh Sch. O.T.C., to be Temporary Second Lieut. for duty with R.F.C.; Aug. 26th, 1916.

Supplementary to Regular Units or Corps.—Second Lieut.

tenants (on probation) confirmed in their rank: H. R. Lumley, V. H. Collins, W. Fraser and B. H. M. Jones.

J. R. Hembrough to be Second Lieutenant (on probation); Aug. 4th, 1916.

The following appeared in a supplement to the *London Gazette* issued on August 28th:—

Supplementary to Regular Corps.—F. F. Minchin, from Capt., 7th Canadian Inf. Bn., to be Lieutenant; Aug. 29th, 1916.

Kite Balloon Schools of Instruction.

The following appeared in the *London Gazette* of August 25th:—

Kite Balloon Schools of Instruction.

Commandants (graded as Squadron Commanders).—From Flight-Commanders:—July 31st, 1916: Capt. G. Disney, Essex R.; Capt. D. Rainsford Hannay, 53rd Sikhs, Ind. Army.

Royal Flying Corps (Territorial Force).

The following appeared in the *London Gazette* of August 22nd:—

Hampshire Aircraft Parks.—Lieut. W. J. Stutt relinquishes his commission on appointment to the Aeronautical Dept., New South Wales Govt.; May 30th, 1916, instead of as previously notified.

The following appeared in a supplement to the *London Gazette* issued on August 23rd:—

Hampshire Aircraft Parks.—Lieut. H. Grinstead to be Temporary Captain; July 20th, 1916.

Aeronautical Inspection Department.

The following appeared in a supplement to the *London Gazette* issued on August 24th:—

Memoranda.—To be Temporary Honorary Captains whilst employed as Inspectors A.I.D.:—Aug. 25th, 1916: G. B. Cockburn, M. Windsor and H. Myers.

To be Temporary Honorary Lieutenants whilst employed as Assistant Inspectors A.I.D.:—Aug. 25th, 1916: H. P. Philpot, A. A. Ross, A. E. Steele, A. Boor, P. W. Smith, L. Warner, T. Greening, W. E. Reason, F. W. Birch, G. S. Walpole, W. A. Thain, F. Gordon-Crosby, E. T. Willows, R. H. Bailey, H. E. Brackenborough, W. F. Collins, C. H. Adams, H. E. Fozard, W. J. Spencer, C. H. Vickers, P. Stevens, G. T. Smith-Clarke, W. S. Kellar, E. Fairbrother, A. N. Barrett, A. B. Rogers, C. H. Grace, W. Parr, P. S. Ashdown, F. H. Hodson, H. Pearse, and M. Nares.

THE ROLL OF HONOUR.

The Secretary of the Admiralty announces the following casualties:—

Previously reported Missing, now reported Killed.

Lieut. Oswald H. Crowther, R.N.V.R.

Previously reported Missing, now reported Prisoner of War.

Flight-Lieut. B. G. Tooke, R.N.

Missing.

Lieut. O. H. Crowther, R.N.V.R.

Flight Commander G. B. Dacre, D.S.O., R.N. (August 26th).

Flight Lieut. B. G. Tooke, R.N.

The following casualties have been officially announced by the War Office:—

Killed.

Second Lieut. A. S. Butler, R.F.A. and R.F.C.

Capt. B. H. Radford, R.F.C.

Previously reported Missing, now reported Killed.

Second Lieut. J. Cooke, Durham L.I. and R.F.C.

Lieut. D. W. S. Paterson, Royal Flying Corps.

Capt. V. H. N. Wadhiam, Hants Regt., attd. R.F.C.

Died of Wounds.

Second Lieut. J. Brown, R.F.A., attd. R.F.C.

Lieut. C. I. Jameson, Canadian Inf., attd. R.F.C.

8836 2nd Class Air-Mechanic A. Spencer, R.F.C.

Died.

3711 1st Air-Mechanic J. A. Garside, Royal Flying Corps.

6061 1st Air-Mech. G. P. Tompkins, R.F.C.

Wounded.

Second Lieut. J. E. Burt, Middlesex Regt. and R.F.C.

Second Lieut. E. W. Edwards, Queen's (R.W. Surrey), attd. R.F.C.

Capt. R. E. A. W. Hughes Chamberlain, R.F.C.

Second Lieut. L. F. Hursthouse, R.F.C.

Second Lieut. G. McDiarmid, R. Scots. Fus., attd. R.F.C.

Lieut. Hon. J. H. B. Rodney, Rif. Brig., attd. R.F.C.

Second Lieut. E. T. Shand, N. Zealand M.I., attd. R.F.C.

5092 2nd Air-Mechanic L. Coldrick, R.F.C.

14573 2nd Air-Mechanic E. R. Deal, R.F.C.

11434 2nd Air-Mechanic P. England, R.F.C.

8186 2nd Air-Mechanic K. D. Handel, R.F.C.

7447 2nd Air-Mechanic J. Harling, R.F.C.

7941 2nd Air-Mechanic F. H. Shanks, R.F.C.

7747 2nd Air-Mechanic C. H. Thornicroft, R.F.C.

Missing.

Lieut. H. H. Whitehead, Can. Inf., attd. R.F.C.

Previously reported Missing, now reported Prisoners of War in German Hands.

Second Lieut. E. B. Harvey, London Regt., attd. R.F.C.

Second Lieut. W. J. M. Tomson, R.F.C.

Previously Officially reported Missing, now Unofficially reported Prisoners of War in German Hands.

Capt. A. J. Evans, R.F.C.

Lieut. H. O. Long, R.E. and R.F.C.

Capt. C. W. Snook, R.F.C.

Previously reported believed Taken Prisoner at Kut-el-Amara, now reported Prisoner of War.

1414 1st Air-Mechanic J. Hogg, R.F.C.

Flying in Egypt.

In an interview said to have been given by General Sir A. Murray to a local journalist at Cairo, the statement is made that, although the enemy aeroplanes are still attempting to harass our troops, their aircraft and pilots are much inferior to ours.

THE FLYING SERVICES FUND—Administered by THE ROYAL AERO CLUB.

THE Flying Services Fund has been instituted by the Royal Aero Club for the benefit of officers and men of the Royal Naval Air Service and the Royal Flying Corps who are incapacitated on active service, and for the widows and dependants of those who are killed.

The Fund is intended for the benefit of all ranks, but especially for petty officers, non-commissioned officers, and men.

Forms of application for assistance can be obtained

from the Royal Aero Club, 166, Piccadilly, London, W.

Subscriptions.

	£	s.	d.
Total subscriptions received to Aug. 22nd, 1916	10,817	16	7
Collected at the Westland Aircraft Works, Yeovil (Forty-fifth contribution) ..	0	13	10
Staff and Workers of Gwynnes, Ltd. (Twenty-second contribution) ..	8	6	0

Total, August 29th, 1916 .. 10,826 16 5
166, Piccadilly, W. B. STEVENSON, Assistant Secretary.



Grahame-White School, Hendon.

STRAIGHTS with instructor last week: Messrs. Culver, Meering, Saunders, Styles and Zambounis. Circuits with instructor: Messrs. Hodgkinson and Lyles. Circuits alone: Mr. Kay. Eights with instructor: Messrs. Duncan, Fisher, Jamie, Keymer, Ormerod, Shadwell, Soden and Ward.

Brevets: Messrs. Ballard, Cooper, Donald, Drew, Goodhart, Mulville, Rodocanachi and Stevens.

Instructors: Messrs. Manton, Winter, Pashley, Biard and Hale.

Beatty School, Hendon.

THE following pupils were out during last week: Mrs. Wilkinson, Messrs. Gadsden, D. C. Squires, J. Squires, de Wilde, Curry, Wood, Gliksten, White, Bruce and Owen.

The instructors were Messrs. G. W. Beatty, G. Virgilio, L. L. King, A. E. Mitchell and H. Fawcett; the machines in use being Beatty-Wright dual-control and single-seater propeller biplanes and Caudron dual-control and single-seater tractor biplanes.

Mr. J. W. Towson took an exceptionally good certificate on a Beatty-Wright machine on the 22nd inst.

Six passenger flights were taken in the course of the week.

Hall School, Hendon.

PUPILS at work last week: With J. Laurence Hall and Gerald Smith: Mr. Stamps. With Fred J. Glegg: Mr. Mayer, Lieut. Raymond Malden, Messrs. Stamps, Henley and Illingworth. With Cecil M. Hill: Messrs. Cordner, Orton, Gudger, Lieut. Malden and Mr. Rayne, With Stanley G. Cownie: Messrs. Bateman, Yuill and Course.

Hall Government-type tractors in use.

Royal Aero Club certificate taken by Mr. Gudger.

Extra practice taken during the week by Mr. Rayne on Hall 70 h.p. tractor biplane.

London and Provincial School, Hendon.

PUPILS doing straight last week: Messrs. Quayle, Egerton, Lewis, Dunnett, Sellars and Davy. Circuits and eights: Messrs. Mander, Rogers, Fox and Randell.

Royal Aero Club certificates taken by Messrs. G. H. Rogers, T. C. Mander, H. S. Fox and C. L. Randell.

Instructors: Messrs. W. T. Warren, M. G. Smiles, W. T. Warren, Jun., and P. G. Allen.

Four tractor biplanes in use.

Ruffy-Baumann School, Hendon.

PUPILS with instructors last week: Messrs. Fanshawe (34 mins.), Carr (34), Trubridge (34), Holmes (solo), Hayes (38 mins.), Paton (15), Good and Babington Smith (20). Doing figures of eight or circuits alone: Messrs. Fanshawe and Holmes.

Instructors: Ed. Baumann, Félix Ruffy, Ami Baumann and André Thomsen.

50 and 60 h.p. Ruffy-Baumann tractor biplanes in use.

Several pupils waiting for calm weather to take their certificates.

Bournemouth School.

PUPILS rolling alone last week: Messrs. Davies, Constant, Holland, Wilmott, Montgomery and Wingfield. Doing straight alone: Messrs. Brandon, Hammersley, Pritt, J. B. Smith, Hinchliff and Adamson. Half circuits alone: Messrs. Pritt and Hammersley. Figures of eights and circuits alone: Messrs. Smith and Daniel.

Instructors: Messrs. S. Summerfield and E. Brynildsen.

35, 45 and 60 h.p. Caudron tractor biplanes in use.

Certificates taken by Messrs. J. Wilson and O. Wilson.

The usual exhibition flights were carried out very successfully by Mr. S. Summerfield, who was again very busy with passenger flights.



FLYING AT HENDON.

ONLY a few flights were made at Hendon last Saturday, as there were a good many rather wet patches, well mixed with thunder, in the air. It was also somewhat draughty up above. However, what flying did take place was well worth seeing; although it was not until late in the afternoon that the first machine went up. This was the new L. and P. tractor biplane, piloted by Willie Warren, and, of course, containing A. A. Fletcher. Climbing to an altitude of about 2,000 ft., they flew over towards Finchley, to where a party of wounded soldiers were being entertained at an open-air fête. Here some very fine loops were executed for the benefit of the brave lads. The approach of a thunderstorm necessitated a hasty termination to these demonstrations, and they only got back to the aerodrome just in time. Warren, as well as M. G. Smiles, made further flights on this machine during the rest of the afternoon. Several of the new G.P.'s (Government Pupils) were taken up for their first airing. Some very fine flights were also put up by Sydney Pickles on a Hewlett and Blondeau B.E. On one occasion, when accompanied by a lady passenger, he reached an

altitude of 9,000 ft. Just before school work started, L. L. King took up a Beatty-Wright, fitted with one of the latest monobloc Beatty engines, and did a little banking.

Throughout the greater part of Sunday afternoon it rained heavily, but in the evening it brightened up a bit and most of the schools came out and got in a bit of practice. H. Sykes gave some exhibition flights on the Martinsyde, but otherwise there was nothing else doing.



The F.N.B. Series.

IN connection with the group of portraits of pupils who have recently qualified for Royal Aero Club certificates at the Ruffy-Baumann School, Hendon, which appeared in our last issue, it should be noted that these are included in the F.N.B. Series of pilots' portraits. This, it is almost unnecessary to add, is a speciality of Mr. F. N. Birkett, who at his studios at 97, Percy Road, Shepherd's Bush, W., has a complete aviation outfit for the use of his clients who wish to have their photographs taken in "flying rig."

SUPER-ZEPPELINS.

COMING as it does from one who is in close touch with aeronautics, the following article by Baron Ladislas d'Orcy in *Scientific American* will be read with interest by our readers. Although, in the main, Baron d'Orcy's views appear to be correct, the author fails to point out one thing which is very significant, i.e., that not only has the stern of the latest airships been given a more pointed form and the fineness ratio reduced, but, judging from photographs of the wrecked airship there can be little doubt that the envelope does not have the parallel sides that characterised the earlier Zeppelins, but have a gradual curve all the way from stem to stern, much after the fashion of the ill-fated Schütte-Lanz airships.

In his table of wrecked airships the author does not mention the "L 4," which was wrecked on the west coast of Denmark at practically the same time as the "L 3." This may be explained by the fact that the "L 4" was a Schütte-Lanz, but it should, we think, be included, as it was a ship of the rigid type, and capital size. To bring the table up to date the wrecks

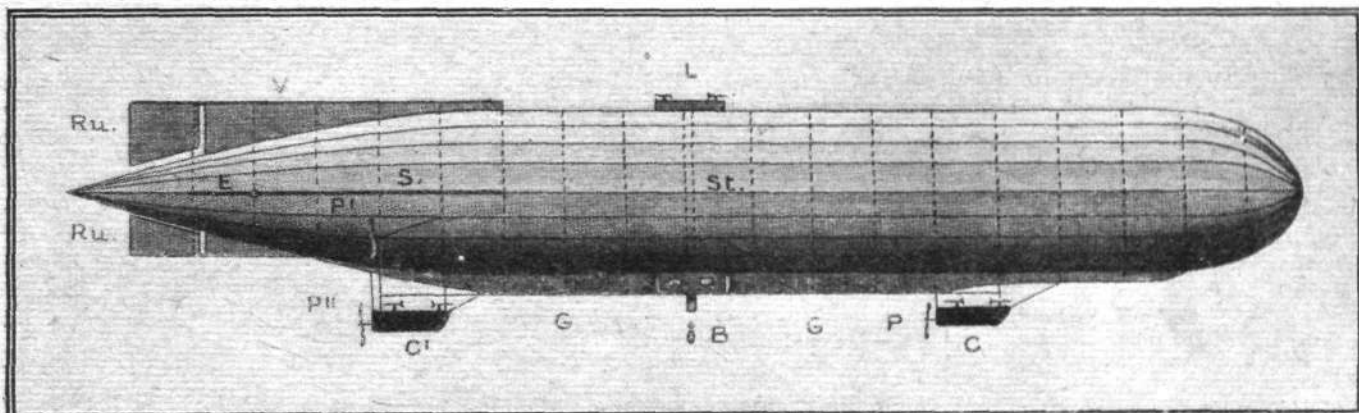
made worse by an exaggerated aspect ratio of ten to one, which comes to say that the hull was ten diameters long.

"On the super-Zeppelin this defect has been remedied to some extent. The bow is slightly blunter than before, while the stern is nearly conical; furthermore, the aspect ratio has been somewhat decreased, so that now the hull is only about eight or nine diameters long. Although this ratio is still some way off the one disclosed by aerodynamic research work to effect the smoothest airflow (6:1), it must materially assist the super-Zeppelin in attaining a greater speed without the expenditure of additional power.

"Regarding the size of super-Zeppelins, an examination of the wreck of the 'LZ 77' reveals that this vessel (which undoubtedly belonged to a recent type, as is disclosed by her factory number) was about 540 ft. long, with a displacement of over 1,100,000 cubic ft., which would furnish a lift of about 33 tons.

"THE STEERING ORGANS.—The steering organs have been greatly simplified on the super-Zeppelin.

"A picture of the 'L 15' (which was photographed before she broke up and sank) shows clearly that in place of a large number of small and parallel rudders and elevators, there is now a compact *empennage*, very similar to that of a tractor aeroplane. Both rudder and elevator now consist of simple 'flaps,' which are hinged to the vertical and horizontal fins respectively.



Diagrammatic View of a 30-ton Zeppelin. Drawn from data obtained from the wrecks of "LZ 77" and "L 15." (CC) engine cars (the one in front containing the pilot house; (PP) propellers; (G) gangway connecting the cars and containing water ballast and fuel tanks; (St.) stairway leading from bomb-room (B) to armed lookout (L); (S) stabilizing fin; (E) elevator; (V) vertical fin; (Ru.) rudders.—(By courtesy of "Scientific American.")

of "LZ 85" at Salonica and "L 7" on the coast of Slesvig should be mentioned, giving a total of 30 airships, of which the loss of 24 has been authenticated.

"It is common knowledge that for some time past a new type of Zeppelin, far more powerful than any of its predecessors has been commissioned with the Air Service of the German Navy. The recent destruction, by the agency of the Allies' anti-aircraft artillery, of two of these vessels has now afforded the long-sought opportunity for getting a closer view of this type of aircraft, which, for the sake of convenience, we shall term a super-Zeppelin.

"A layman might hardly discern any change in the outward appearance of a super-Zeppelin when compared with previous types; it appears, however, upon examination of what remained of the vessels destroyed at Révigny (the 'LZ 77') and in the mouth of the Thames (the 'L 15'), that the hull, steering organs and propelling apparatus have been redesigned to a great extent on the latest types.

"It is a matter of discussion whether there exists but one new type or whether the Zeppelin works still turn out a large, long-range type for naval raids and one, smaller but faster, for military reconnaissances. The fact remains, however, that the Germans possess at present a large type of Zeppelin whose features, as far as they are known, shall be discussed herewith.

"THE HULL.—The hull of the *ante-bellum* Zeppelins was in the shape of a cylinder with two symmetric ogival ends—a very poor form, aerodynamically speaking; and it was still

"Their surface area has naturally increased, as the conical stern takes up less space than when it was blunt; as a consequence, and owing also to a smoother air-flow, the efficiency of the steering organs should have materially increased.

THE PROPELLING APPARATUS.—The distribution of power has been very radically redesigned on the super-Zeppelin, the new system being one that follows marine practice closer than was customary hitherto.

"While the 1914-15 type of naval Zeppelin was propelled by two sets of two 200 h.p. engines, each set driving two airscrews mounted on outriggers on either side of the hull, the super-Zeppelin carries but one engine in the front car and three engines in the rear car. Two of the stern engines drive side propellers in the old fashion; but the third one, as well as the front engine, each drive a directly coupled propeller at the rear of the cars.

"The advantages derived from mounting the propellers astern are manifold: Firstly, as there is nothing to interfere with the air thrown back by the propellers, the efficiency of the latter should be somewhat increased; secondly, the danger of sparks from the exhaust, which might ignite the hydrogen, is rendered very remote; and thirdly, the mounting of the engines in the stern car should afford more room in the front car for the navigating personnel.

"One might therefore assume that ultimately the stern car will become the sole engine room, while the bow car will be the navigating room and nothing else. If this has not yet been done it should rather be attributed to a lack of higher-powered engines than to some obscure reason for keeping one propeller ahead.

"**ARMAMENT.**—The armament of these vessels has hardly changed. The bomb-room has remained in the middle of the gangway, but the crude way of dropping bombs by hand has been superseded by a scientific appliance, whereby the bombs are released electrically.

"In addition to the two machine guns mounted on each car, two more have been provided for arming the lookout post atop of the hull, which is connected with the bomb-room by means of a stairway encased in a chimney.

"Thus far the apparent changes affecting super-Zeppelins.

"Modifications relative to the ratio of dead weight to useful load are more or less a matter of speculation. On the *ante-bellum* Zeppelins the useful load amounted to about one-fourth of the total lift. According to a statement emanating from Count Zeppelin's secretary, the climbing power of the new type is two-fifths better than on previous types, and the load of ammunition amounts to two tons; it might therefore be assumed that the useful load is also at least two-fifths better than heretofore, in which case its ratio would be 35 per cent. of the total lift.

"Such an improvement is entirely within the present-day possibilities, if one bears in mind that the ratio of dead weight to useful load decreases with the Zeppelin's size and that the super-Zeppelins displace about ten tons more than the vessels of the previous type. Some weight may also have been saved through an improved system of construction, as well as by the new 200 h.p. engines, which weigh only 880 lbs. instead of 985 lbs.

"On the basis of the above ratio a 33-ton super-Zeppelin carries a useful load of about 11½ tons—more than double the load the previous type was capable of lifting. If such is the case, allowance for two tons of ammunition leaves 9½ tons available for crew, ballast and fuel.

"**THE CREW.**—Of the two super-Zeppelins destroyed lately, the 'LZ 77' carried 15 men, and the 'L 15,' whose crew was captured, 2 officers and 16 men. Supposing the latter figure represents the war complement of the largest super-Zeppelin, it remains to be computed how these 18 men are detailed for navigating and fighting.

"The three-engined passenger Zeppelins required a navigating *personnel* of 9 men, distributed as follows:—The commander, 2 helmsmen and 2 mechanics in the front car (housing 1 engine); and a chief engineer and 3 mechanics in the rear car (housing 2 engines).

"Although a super-Zeppelin mounts a third engine astern, it might be assumed that the engine crew has not been increased, 5 mechanics and 1 engineer being quite sufficient

for looking after 4 engines. But in view of the super-Zeppelin's long cruising radius a third helmsman might have been added to the crew; this would leave 8 men, including the lieutenant, for manning the bomb tube and the machine guns. Six men are required for manning the latter; the remaining two would then constitute the bomb-crew with the lieutenant as gunnery officer, and possibly, second in charge of navigation.

"A complement of 18 officers and men represents a load of about one and one-half tons; there would then remain 8 tons for ballast and fuel.

"**THE BALLAST.**—There are very good reasons for believing that the water-ballast has been considerably increased on the 33-ton airships. Vessels of the previous (23-ton) type, which carried 1½ tons of ballast, used to navigate at an altitude of 5,000 ft., and hardly ever reached the 9,000 ft. mark, excepting during trials; super-Zeppelins, however, often reach an altitude of 10,000 ft., and are currently seen navigating at 7,000 ft.

"Whereas the buoyancy of a Zeppelin is just sufficient to keep the vessel floating at a low level, great heights can be reached only through a combination of dynamic lift (expenditure of engine power) and of static lift, the latter being attained both through jettisoning ballast and burning fuel, and in extreme cases, by a forced dropping of bombs.

"The question of ballast is one closely allied with that of compensating losses of buoyancy at great heights. Lack of space unfortunately forbids a detailed discussion of this subject; suffice it to say, that losses of buoyancy cannot be made up entirely by jettisoning ballast and one might assume that some artifice, possibly a system of compensating balloons for each of the 20 or more gasbags, has been devised for remedying this defect on super-Zeppelins.

"Such a course should not be astonishing at all in view of the several airships the Germany Navy lost in the North Sea, for the sole reason that when they came down from a great height, the gas, after having expanded, contracted through the greater atmospheric pressure and proved insufficient for insuring the necessary buoyancy. It was this phenomenon which caused the loss of 'L 3' and 'L 4,' not to speak of others.

"Anyhow, one can safely assume that the ballast of a 33-ton vessel is at least double that of the *ante-bellum* Zeppelin, say three tons, but more probably four tons, leaving four tons available for the fuel.

"**CRUISING RADIUS.**—As the fuel consumption of the four-engine unit amounts to about 450 lbs. per hour, four tons of

Table showing Probable Zeppelin Losses from August 1st, 1914, to May 3rd, 1916.

No.	Name.	Place.	Date.	Cause of Loss.
1	Z 8	Badenvillers, France	22.8.1914	Destroyed by French gunners. Part of crew lost.
2	Z 5	Mlava, Russia	29.8.1914	Destroyed by Russian gunners. Crew lost.
3	?	Seradz, Russia	6.9.1914	Captured, while at anchor, by a cavalry patrol. Crew of 30, prisoners.
4	?	Düsseldorf, Germany	9.10.1914	Destroyed in shed by British aviators.
5	LZ 31	Friedrichshafen, Germany	21.11.1914	Destroyed in shed by British aviators.
6	?	North Sea	23.1.1915	Foundered during a storm.
7	L 3	Ebsjerg, Denmark	17.2.1915	Stranded, having run out of fuel, and broke up. Crew of 16 interned.
8	L 9	Boulogne, France	5.3.1915	Foundered during a storm, after having raided Calais. Crew lost.
9	L 8	Tirlemont, Belgium	4.3.1915	Damaged by British aviator; wrecked on landing. 21 of crew killed.
10	?	Thielt, Belgium	12.4.1915	Damaged, over Béthune, by French gunners; wrecked on landing.
11	?	North Sea	26.5.1915	Broke away without crew; foundered off Heligoland.
12	LZ 37	Evere, Belgium	7.6.1915	Destroyed in shed by British aviators.
13	LZ 38	Ghent, Belgium	7.6.1915	Destroyed in mid-air by British aviator. Crew lost.
14	L ?	Ostend, Belgium	10.8.1915	Raided London. Destroyed, upon her return, by British aviators.
15	?	Vilna, Russia	24.8.1915	Shot down by Russian gunners. Crew of 10 made prisoners.
16	?	Saint-Hubert, Belgium	13.10.1915	Destroyed by exploding in mid-air.
17	?	Maubeuge, France	16.10.1915	Stranded on a chimney and broke up.
18	?	Grodno, Russia	5.11.1915	Destroyed by the storm on landing.
19	L 18	Tondern, Germany	17.11.1915	Wrecked in shed through an accidental (?) explosion.
20	Z 28	Hamburg, Germany	17.11.1915	Wrecked by the storm.
21	L 22	Tondern, Germany	1.12.1915	Destroyed in shed through accidental explosion of a bomb.
22	?	Kalkun, Russia	5.12.1915	Shot down by Russian gunners. Crew lost.
23	?	Mainvault, Belgium	30.1.1916	Raided Paris. Damaged by French aviator; wrecked on landing.
24	L 19	North Sea	21.2.1916	Raided England. Probably run out of fuel; foundered. Crew lost.
25	LZ 77	Révigny, France	21.2.1916	Shot down by French motor guns; destroyed in fall. Crew of 15 killed.
26	L 15	Kentish Knock, England	1.4.1916	Shot down by British gunners. Crew of 18 surrendered. Vessel sank.
27	L 20	Stavanger, Norway	3.5.1916	Raided Scotland. Stranded, having run out of fuel and drifted with the wind. Blown up by crew: 3 killed, 16 interned.

* Destruction not authenticated.

fuel would keep the engines running for about 18 hours at full speed (55 knots), and thus insure a cruising radius of 990 nautical miles. The latter figure will possibly necessitate a reduction of, say, 10 per cent., if allowance be made for the fuel burnt while climbing.

"If it were feasible to run the vessel on the homeward journey (after she has been lightened up through the expenditure of fuel, ballast and bombs), with two engines only, the radius of action might be somewhat increased. By using the formula

$$\text{Speed at } x \text{ Power} = \frac{\text{Full speed}}{\sqrt{\frac{\text{Full power}}{x \text{ speed}}}}$$

one finds that by running with two engines the airship would develop a speed of 38.8 knots, which means a saving of 225 lbs. of fuel per hour, and consequently an additional cruising radius of about 200 nautical miles (9 hours at 55 knots = 495 nautical miles + 18 hours at 38.8 knots = 698 nautical miles, total: 1,193 nautical miles)."

"X" AIRCRAFT RAIDS.

"X 44" Raid, August 23rd.

The following communications from the Field-Marshal Commanding-in-Chief, Home Forces, were issued through the Press Bureau:—

August 24th, 10.35 a.m.

"One hostile airship crossed the East Coast shortly before midnight. A number of incendiary and some high-explosive bombs were dropped in open fields. No damage and no casualties have been reported. The airship went to sea again before 1 a.m."

4.20 p.m.

"There is nothing to add to this morning's communiqué."

"Fifteen high-explosive and 15 incendiary bombs were dropped by the raiding airship, all of which fell in open fields. There were no casualties, and no damage was caused."

German Version.

Berlin, August 25th.

"One of our airships on the night of the 23rd attacked the fortress of London."

"X 45" Raid, August 24th-25th. August 25th, 1 a.m.

"Several airships crossed the East and South-East Coasts shortly before midnight. A number of bombs were dropped, but so far no report of casualties or damage has been received."

10.30 a.m.

"Six hostile airships raided the East and South-East Coasts of England last night at intervals between midnight and three a.m. One airship made her way westwards well inland; the remainder carried out short inroads over the coast. The number of bombs dropped by the raiders is as yet uncertain. Several are reported as having been directed against ships at sea. The damage effected by the raid is slight. In one locality a railway station and several houses were damaged and two horses killed; at another two houses were wrecked. The total casualties have not yet been reported. Up to date nine persons have been reported injured, some fatally. Anti-aircraft guns came into action at certain points both on land and from ships at sea. Some of our aircraft went up in pursuit. One aeroplane succeeded in firing into a raider at close range, but she eluded her pursuers in the clouds."

"A further report will follow."

4.50 p.m.

"Further reports show that five or six enemy airships raided the East and South-East Coasts of England as already stated. Two or three of the raiders came in over the Eastern

Counties, and dropped over 30 bombs without causing any casualties or damage. Another raider attempted to approach a seaport town, but, being heavily fired on by anti-aircraft guns, was driven off to the eastward after dropping 19 bombs in the sea without reaching her objective. Another airship which visited the South-East Coast also came under heavy fire from the anti-aircraft defences, and was compelled to unload her cargo of bombs in the sea without doing any damage to life or property."

"Another raider succeeded in reaching the outskirts of London, when explosive and incendiary bombs were dropped, and it is regretted that casualties occurred among the civilian population as follows:—

	Men.	Women.	Children.
Killed	3	3	2
Injured seriously	3	4	0
Injured slightly	4	7	3

"In addition, one soldier was seriously and 14 slightly injured by broken glass."

"As far as it has been ascertained at present, some 40 bombs were dropped. Most of these fell either on small property or in the open, but an electric power station was slightly damaged, and engineering works were somewhat damaged by fire. Several small fires occurred, all of which were promptly extinguished by the London Fire Brigade, several persons being rescued from positions of danger by firemen. Fire was opened on this airship, which immediately altered its course. It is possible that the first airship was followed by a second raider, but this cannot for the present be verified. Some of our airmen went up in pursuit, and, as stated in this morning's communiqué, one airman succeeded in firing at a raider at close range. In all 100 bombs are known to have been dropped by the raiders."

German Version.

Berlin, August 25th.

"During the night of August 24th-25th several naval dirigibles attacked the southern portion of the East Coast of England. They dropped numerous bombs on the City and the south-eastern district of London, and the batteries at the naval stations at Harwich and Folkestone, and numerous vessels moored in Dover Harbour. Everywhere very good results were observed. All the airships have returned, although they were heavily but unsuccessfully shelled by numerous defence works, and during their attacks were fired at by anti-aircraft batteries."



CORRESPONDENCE.

The Total Suppression of Flying.

[1927] As I am sure that "FLIGHT" has no wish to misrepresent my proposal for the suppression of flying, will you allow me to point out that my suggestion had nothing to do with the abolition of war, but only desired the elimination from it of elements that might be a peril to society. If science puts sufficiently awful capacities for destruction into our hands, it is plain that nations will have to agree to forbear from using them in their quarrels. There is proof of that in the protest of the United States against the unannounced drowning of non-combatants, even though only the convenience and not the existence of society is affected thereby. If we, or any of our Allies, knew how, and used our knowledge to spread bubonic plague, or any other pestilence, through the Central Powers, I take it that the protest of the States would be still more emphatic, and might even lead to some form of

action. We do thus admit the principle that certain modes of killing must be barred to combatants, and that the intervention even of a feeble military power, like the States, can enforce restrictions of which the bulk of humanity approves.

There is thus nothing in my proposal which is new to international practice, or to the exercise of international powers. The nations agreed to ban explosive bullets, which can be manufactured in absolute secrecy by thousands of millions; why then should they think it impossible to ban flying, which must publish its least existence over miles of country, and which, unlike the bullet, is a menace at any moment, not only to every home, but to the conditions which, laboriously, during thousands of years, we have built up for the betterment of mankind.

H. F. PREVOST BATTERSBY.

St. George's Hill, August 24th.



THERE are, and I suppose always will be, people who must be for ever meddling with things. Sometimes to advantage, generally otherwise, the names of common objects get altered by some genius, and pushed with such persistence as to become accepted in place of the original.

Americanisms we are inclined to look upon as funny, generally. We admit them as being sometimes cute and expressive, but we never seriously fear they will find their way into our dictionary, although one, an absolutely coined name, and apparently meaning nothing in particular at its birth, has done so. It is the word "Kodak." Kodak was given in earlier editions of Webster as meaning a snapshot camera, but it was stated that it was an invented word. In recent editions Kodak has the honour of having grown to two paragraphs, the second one reading: "Kodak. To photograph with a kodak: hence to describe or characterise briefly and vividly." It is possible that in time we may hear a judge admonish a witness, inclined to long windedness, to "kodak."

Somebody has again started an objection to speaking of "aeroplanes." I have looked at the word from all points of view, and really cannot find anything wrong with it. Aeroplane seems to me to be a good fit. Hydroplane, I admit, is not a good word, for it clashes in ideas with another machine, but waterplane or seaplane seem all right.

I suppose the contention is that a seaplane is also an aeroplane, although I suppose an aeroplane need not necessarily be a seaplane. Yet aeroplane and seaplane, or if we must be exact, seaplane and landplane—the latter is clumsy—would fill the bill. Anyway, the names I have seen suggested in place seem to me to be weak in the extreme.

One correspondent in the *Pall Mall Gazette* suggests that they should be called "flys," and he is backed in his opinion by others, and it should be remembered that in a way it has pioneer justification, as the Wright Brothers pinned their faith to "flyers." One says: "It sounds a bit funny at first, but when one thinks a bit about it one sees how sensible it is." Well, may be, but why think about it? Would seafly and landfly be the result? I can suppose entomological names also for the various sizes of machines. A report from the Front that a "bluebottle escorted by gnats gave battle to a swarm of seaflys" would read like Zig-Zags from the Zoo.

From quite an outside source comes, as noted last week, the horror of "Birds" as an alternative; landbirds and seabirds. In this direction there ought to be nothing doing. Nicknames always run riot in the services, and I shiver to think of some of the appellations that would be dug up by our light-hearted boys if either "birds" or "flys" gained the day. We have already had the June Bug and the Infuriated Grasshopper, but—let's stick to aeroplane for overland craft, or, better still, plane—as so often used

in these pages—if aeroplane is too much of a mouthful. The "sea" is easily added to define over-water machines.

I sometimes have spasms and break out into verse, but the following is not mine:—

Hail to thee, high flyer,
Who with generous heart
Pourest out thy fire
Over earth's dim chart,
In sundry spasms of well premeditated art!

Now this is an ode to the thing the searchlights seek at night. There is the high flyer, the generous heart, pouring out fire, premeditated art. The last line drags a bit, but no matter. Also, I would suggest a better, though similar sounding name for the initial word. Here is the second verse:—

Like a monstrous bird
Overseas thou comest;
Melodies unheard
Through the heavens thou hummest,
And bombing still dost soar, and soaring ever bombest.

Somehow or other that last word does not seem to rhyme, but it is probably one of the spasms of well premeditated art. Shades of Shelley that his beautiful "Ode to a skylark" should have been strafed so remorselessly.

As a set-off, here are some by a boy reader who says he is 11 years of age. He says it is "Poetry," and I will take his word for it. In any case it is original and shows some promise:—

Up and out to reconnoitre.
Up above the clouds to loiter.
Out to make a reconnaissance.
Out to make them make obeisance
To the British R.F.C.
You should see the Vickers' Fighter
Empty on a German "blighter."
You should see the deadly Fokker
Sent to Davey Jones' locker
By the British R.F.C.
You should see the Bristol scouting.
You should see the Avro routing,
Then, afterwards, the German doubting
If he's got an R.F.C.

Once I had to find a rhyme for "torpedoed," and I did not come out of it so well as my little friend with "reconnaissance" and "obeisance," to say nothing of "fighter" and "blighter," which speaks of poetic pluck beyond my reach. As a fact, at his age, I am not sure that I dared tackle "reconnaissance" at all, but should have sought relief in something like this:—

Out to take a look around.
(Words to fill up) on the ground.

Now there's genius for you. Come fill up your bumpers, for I am in a right merry mood, and—

Sing hey, sing ho, sing hey for the poet free;
A blithesome chap who cares no rap,
No earthborn son is he.
Sing ho, sing hey, sing ho neath the spreading tree;
This "Dreamer" chap who cares no rap,
No earthly thing can be.

AVIATION IN PARLIAMENT.

SPEAKING on the motion for the adjournment in the House of Commons on August 22nd, Mr. Pemberton Billing said: Before this House adjourns I should like to take the opportunity of calling the attention of the Government to one or two points, which I think I have done before, and possibly done in vain. I really consider that the present defences of this country, as we know them to be, demand that attention should be called to them on the Adjournment. I would like to show the Government that the public are not satisfied. I know that the Government are so overworked that they have not time really to think of what the public do feel about this matter. There is no question of panic at all. It is purely a question of this, that for two years and some months the Germans have been threatening and carrying out raids over this country, and yet the defence against Zeppelins to-day, although it has been amplified, is not more scientific than it was two years ago. Have we learned anything about it? It is all very well for Ministers in official communications to say that these things are of no military significance. That is not true. There is military significance in everything in war, and if there is any significance at all there certainly has been in these raids. As I pointed out in the House, the other night, if one carried out similar raids in Germany by way of reprisal, if we raided one of their towns, we should very soon find what German men and women, the non-combatants, would have to say. I am satisfied that if we had the men and the material to do that, German opinion, seeing the price they had to pay for their raids over England, would very soon say, "Stay your hands." They do not want these raids over their towns, and I am perfectly satisfied that they in their turn would not be prepared to undergo the suffering they have caused here.

Continuing Mr. Billing said he had several letters from all parts which contained statements at variance with the official statement. He continued: Since I spoke last the Air Committee of Inquiry into the administration and command

of the Air Service has brought forth a Report. I have heard of mountains being in labour producing a mouse. It is not my intention to answer that Report in detail, but I am going, for the benefit of the House, to take just one case to prove how generously this Committee anticipated the wishes of the Government, and to prove that I was justified in that case, and if there is any other case that I have ever mentioned on the floor of this House or on the public platform which either the representatives of that Committee in this House or any member of the Government care to challenge me on the floor of the House I am prepared to substantiate it. My difficulty in that case, as it must be in all cases, is to make my point, which is a Service point, without not only involving but damning the career of the officers who are interested in this particular case. What did the Committee of Inquiry say about the one case which I will just put to the House? In their Report they state:

"Statement by Mr. Pemberton Billing—Desmond was killed on some type of B.E. machine which had been repaired by the Royal Aircraft Factory. The repaired part broke at 4,000 ft. up, and the pilot was pitched out.

"Mr. Pemberton Billing's suggestion is that it was 'faulty design or in bad repair.'"

I frequently attacked the Government as to spare parts, and I have also attacked official repairs. These are the facts as given by the Committee, founded presumably on statements of the military witnesses.

"The date was May 28th, 1913. The place, Montrose. There was a suggestion made at the time that there had been a patch on the outside of the right wing of the plane, and that someone had broken the tip of the wing, then repaired it, and put a patch over the repaired part, the suggestion being that this was done by someone with a view to hiding some damage which he had done to the machine. The matter was closely inquired into at the time by a Committee, of which Mr. H. T. Baker, M.P., was chairman. The Committee have had



New York Naval Militia Aviation Camp at Bay Shore, N.Y., as seen from one of the service flying boats.
(Aviation.)

the notes of the whole of the evidence given to that Committee before them."

I would like just to mark that point.

"There were twenty-three witnesses. The suggestion depends on the unsupported evidence of one man out of those twenty-three witnesses. No useful purpose would be served by reopening the matter, especially as some of the witnesses called have since been killed."

Now listen to what the Committee say:—

"A perusal of the transcript of the notes of the evidence lead to the conclusion that the suggestion of a patch is quite unfounded."

In fact, this Committee say that Mr. Pemberton Billing made a statement for which he had no justification. He said there was a patch, and there was no patch; he said there were repairs, and there were no repairs; he said the pilot lost his life through maladministration, and that the man was killed through the machine crumpling up in the air through bad design or bad repair, for which officials were responsible; and it is a lie, and the charge he has brought is without foundation. Let us look at the actual Report of the Committee on Public Safety and Accidents, which investigated the case, and the notes of which the Air Committee had before them. The Public Safety and Accidents Committee sat on June 2nd, 1913. There were present Major Sykes, Major Burke, and the Royal Flying Corps military representatives:—

"On consideration of the evidence the Committee regard the following facts as clearly established (1) that the aircraft was built at the Royal Aircraft Factory in June, 1912, and rebuilt there with new wings in August, 1912.

"The examination of the wrecked aircraft clearly indicated that the top right-hand wing tip had been broken at some time or another and repaired in three places.

"The joint between new and old piece of the main spar had been made in a most improper and unsafe manner.

"The toper splice in the woodwork, about 7½ inches long, was very roughly made and badly fitted, there being places in which the glue was an eighth of an inch thick. The splice was subsequently bound with whip-cord, which was not treated with cobbler's wax or varnished to prevent it becoming loose. The new portion of the spar was not varnished, but left in its natural state.

"After the repair had been made, new fabric was put over that portion of the wing affected by the breakage. The new fabric was of a different material from the rest of the wing. The representatives of the Royal Flying Corps and of the Royal Aircraft Factory reported that their records contained no entry of this repair having been made to the wing of this aircraft since it was rebuilt.

"Pieces of the wing and struts were picked up a mile away from the spot where the aircraft struck the ground and in the direction from which the aircraft was seen to come, and in such positions that they must have fallen from the aircraft whilst still in the air.

"The Committee is of opinion that the primary cause of the accident is the failure of the faulty joint in the repair to the rear main spar. This joint, subjected as it necessarily was to vibration when flying, and probably at the last only held together by the wrapping of cord, the glue having failed previously, eventually gave way.

"The Committee is further of opinion that the repair referred to above was so badly done that it could not possibly be regarded as the work of a conscientious and competent workman."

Sir W. Bull: What is the date of that Report?

Mr. Billing: The 17th June, 1913. What are we to say to a Committee which makes such a finding when it has access to a Report of this description, a Report made not by a packed Committee, but by independent authorities within twenty-four hours of the accident, with the machine at their feet to examine, who say that there was a patch, a big patch, that the wing had been broken in three places and clumsily repaired, not repaired in a conscientious manner, and that the man when told to fly a certain machine had confidence in his senior officer that it was a safe machine to fly. He gets into this groggy machine to which I have referred and is dashed to death from 4,000 feet, and then it is considered improper if I say that some of our men have been murdered rather than killed. All I have to say is that if this is a sample of the reports that we are to expect from the Air Committee of Inquiry, I do not look forward with any satisfaction, and I am sure the country does not look forward with any confidence

to its future findings. The great charge I brought against the Air Service was what? Faulty mechanism. I said that there was ignorance displayed on the part of those in supreme command. There has been colossal ignorance displayed, and there is appalling ignorance being displayed now by the supreme command. So appalling is that ignorance, so forcibly has it been brought to my notice, that unless before October 10th some very drastic reforms take place, I shall have very much more to say in this House about the Air Service of our country than ever I said before.

With regard to this engine which was designed by the Government officials—this engine which has been supplied to practically all our pilots ever since the outbreak of war, in the military branch in particular. This engine has killed more men than any other mechanical contrivance in this war. We are told that this is an excellent and efficient engine. We are told that there is no justification for saying that it is mechanically impossible; that it is a very expensive engine to produce; that it is a very inefficient engine to produce! I asked a question in the House the other day, as to whether the Prime Minister would give the Air Committee access to a Report, extracts of which I propose to give to the House. I was told that there was no such Report; that it could not be found. Some gentlemen do not want to see these Reports. But there is still the pen of an honest man. Fortunately, there are one or two men—quite a number, I hope, though, perhaps, a minority—in the Departments yet who do consider that their country is something even greater than their Departments, and who do consider that if men are to be driven into the air with inefficient machinery that the least they can do is to say so. Here is the Report, from which I shall read brief extracts in the hope of guiding the hon. Member for Rugby (Major Baird) in his search for the original. Any other assistance I can give him I will be happy to do. Here is the Report. Since I raised the question in this House I have ascertained, for I did not know it, that this Report was made at the desire of the Ministry of Munitions, by one of the leading precision engineers in this country.

Major Baird (*representing the Air Board*): Would the hon. Member say how he got that Report?

Mr. Billing: I have not the slightest intention of involving anybody but myself. This is a Report on the labour problem for the Ministry of Munitions. He says:—

"Immediately the manufacturing of any of the component pieces or the erecting and assembling of the complete unit known as the Royal Aircraft Factory engine is attempted . . . nothing but trouble, disappointment, and scrap result."

There is another point that is rather interesting:—

"That no particular unit piece excepting a few standard bolts in the whole of the R.A.F. engine could be looked upon as a manufacturing proposition. The general design of the whole of this engine was so bad and so ill-considered from the standpoint of manufacture that the most appalling difficulties were experienced in producing it at all. After it was produced the number of consumable spares required to keep the engine running were of such enormous quantities as to make the construction of such a device a farce."

This is from the Report upon which these gentlemen are basing their replies and attacks upon me. They can have this Report if they want it:—

"Considering these statements and examining Mr. Hannay closely as to the veracity of his accusations, he invited me carefully to go through the construction of this engine with him, and the facts and figures submitted to me were so astounding as to be almost unbelievable."

I do not want to trouble the House too long. [Hon. Members: "Go on! Go on!"]

"Prior to my inspection of the actual constructional work, Mr. Austin—"

I do not see why I should not give names.

"Mr. Austin volunteered the statement that he would be only too pleased if he had no more of these engines to construct, as they were an impossible proposition to make and an impossible machine to maintain in working order when made. He told me that in spite of this the Contracts Department, who had given them the order for fifty to sixty per month, wanted this number immediately increased to 100 complete engines per month, and fifty complete sets of spares per month. I asked him if this meant that they required cylinders as well, and he said that cylinders were one of the consumable spares."

Many of us know what a motor car is. How many of us

when buying a motor car buy two or three dozen spare cylinders for the engine? What should we think of a salesman who tried to sell us a car and who not only recommended but insisted on undertaking that, on delivery, we should take four dozen spare cylinders for fear of a breakdown on the road? They have got motor cars running all over the country going to the factories of the people who are building them, and when they have got completed machines they tear the cylinders off, and I am told on good authority that the week before last in six days 1,800 spare cylinders were sent to France to keep some 200 or 300 engines going.

"I asked what the life of such an engine was, and he told me in many cases it did not exist for more than twenty-five hours."

When a pilot knows that, it must give him anxiously to think at what point that twenty-five hours is reached. Surely this House appreciates that the spare plant of an aeroplane is the crux of the whole problem. Should we supply our airmen with engines of Government design simply because some official has made some ghastly blunder which he has got to substantiate? He has spent hundreds of thousands it may be in experimental work which cannot be written off, and so he perpetuates his blunder, when all the time, if we wished to, we could be buying and building much more efficient engines. Only this morning it was brought to my notice that, not satisfied with this colossal blunder, another Department of the Royal Flying Corps is bringing out their own engines. This Department has had access ever since the outbreak of the War to all the drawings of all the engine people of this country. General Henderson said before the Committee that the Royal Aircraft Factory did not have access to the manufacturers' drawings of their engines. Well and good, but there is another Department which did, and that is the Department which is now bringing out this wonderful engine; and I would like to know what experience this gentleman, whose name I would be very pleased to hand to the hon. member for Rugby, has had for designing this engine? What right has he to waste Government time and Government money, even if we were not at war, and much more so when we are at war, in looking over the designs of private manufacturers, without slavishly following—if he did that it would not be so bad—but making improvements without knowing why they were done? What is the result? They produce an engine, and it is a failure. They give orders to one firm, to two firms, to three firms, whose names I will give the hon. member, and before the writing on the order is dry they carry out the tests after giving the order, and they find that the engine is inefficient, and this has got to be altered and that has got to be altered. They go round to the firms, and do not even ask permission, but simply cancel these orders. This is not a single case. It has been multiplied, and the engine I am speaking of now is not the engine to which I have been referring, but the engine they are trying to build up to take the place of that engine. It says here that they made up to the two hundred and fortieth engine over 4,000 scrap pieces or parts. There are hon. members in this House who know what a machine shop is, and perhaps, like me, they have worked in machine shops. You talk about 4,000 spare parts, and you read here that in very few cases of component parts does the scrap go down so low as 75 per cent. of the output. This is the official report, and what I want from the Government Bench is an assurance that this mechanical abortion shall be stopped before the adjournment of this House, so that for two months more we do not go on squandering money.

I am sure the £6,000,000 we are spending a day on the war would not justify my keeping the House for half a million or a million pounds spent between now and the reassembling of the House, but it concerns the lives of some of the best men of this country who come to me, although I cannot mention their names, and ask me to see that they get the best engine and the best machine. There is a very great deal more in this Report with which I do not propose to deal now, but I do ask that someone on the Government Bench will ask me for a copy of this Report and make some reassuring statement that the Committee of Inquiry will not leave such ghastly loopholes as this to destroy what little confidence they may have left. I have greater hopes for some of the other Committees which have been appointed recently, but I would ask the House to appreciate that the findings of this Air Committee and that the attitude of it, so far as it has been at present revealed to us, do not command the respect and confidence of this House or of the country.

Mr. Shortt: I do not propose to follow the hon. member into any of the more controversial matters which he has raised, but as he has made somewhat of an attack upon the Air Committee, of which I had the honour to be a member, I feel that I ought to let the House know something of the methods which that Committee adopted in their investigations. The Air Committee was appointed as a Committee which was to be presided over by a gentleman of judicial training and judicial mind. Our proposal was to invite, and we did indeed invite, evidence to be brought before us, not of a strictly legal kind, but the best evidence which anyone who had any suggestion to make, any criticism to make, or any charge to make against the Air Service could obtain. We heard, amongst others, the hon. member for East Herts, who has just spoken. Indeed, I may say that it was because of his charges of criminal negligence against the higher command of the Air Service—primarily, at any rate—that this Committee were appointed and constituted. We heard evidence, whether direct or indirect, whether of their own personal knowledge or by hearsay, from anyone who chose to come before us. We not only invited the hon. member for East Herts to come before us, but we gave him every opportunity to prepare his case. It is true—I do not make any complaint; I am merely reminding the House of the fact—that he treated us with considerable contempt; but eventually he did consent to come before us, and, as he had made charges, we were only too pleased that he should come and let us know what he knew and give us such information as he had got and as was available to him. He had provided for him some three postponements, going over a considerable number of weeks, in order to enable him to prepare the case which he had said in March of this year he was prepared at that moment to prove in this House to any individual member. But we gave him such time as he required.

Mr. Billing: On a point of order. I would like to point out that the postponements referred to were with the express intention of giving the Committee an opportunity of taking a holiday, which I cheerfully assented to—the postponement after the first 10 days.

Mr. Shortt: The hon. member's memory misleads him. We eventually had the hon. member before us, and he produced any amount of hearsay evidence. Of course, I quite appreciate his reason for refusing to mention any names. We appreciated that, and we heard all the hearsay evidence he had to bring before us. He brought no matter, no hearsay evidence which we could trace, to which we could attach a name or with regard to which we could ask for any person to be called before us. I mention that for this reason, that I am now going to tell the House what steps we took, as a Committee, to enable members of the Air Service to come before us without any possibility of their identity being known, either to Gen. Henderson or to anyone in the Higher Command. What we did was this: We asked gentlemen, like the hon. member for East Herts, to give us the names of any witness they desired should be called before us. We got from Gen. Henderson a complete list of all the members of the Air Service who happened to be in this country, and we chose a list, which embraced not only those witnesses whose names were given to us by critics of the Air Service, like the hon. member for Brentford (Mr. Joynson-Hicks) and the hon. member for Canterbury (Mr. Bennett-Goldney)—

Mr. Billing: Not by myself.

Mr. Shortt: Really, I think I might be allowed to go on with my speech. We not only embraced their names, but a large number of others. Their names were sent in to Headquarters, and every name we sent in was ordered to appear before the Committee. So that nobody knew that any particular witness was called before the Committee, and nobody, neither Gen. Henderson nor anyone else, knew which were the witnesses named by the hon. member for Hertford, if he did name any, which he did not, by the hon. members for Brentford or Canterbury, by Lord Montagu, or by anybody else. Therefore, it was perfectly safe for any member of the Air Service to come before the Committee and to give any evidence he chose.

Mr. Lynch: Might I ask if it was not the fact that two witnesses were identified afterwards, and were hauled over the coals by their superior officer for having given evidence?

Mr. Shortt: I did hear a complaint from Lord Montagu of one witness who, on his return from the Committee—the witness, by the way, was not called and did not give evidence—was embroiled in some way with the civil police, nothing to

do with the military at all. That was the only case I did hear of. If the hon. member will tell me of any other, I am sure it will be looked into.

Mr. Lynch: There was the case raised in this very House. That was only one case.

Mr. Shortt: I cannot say. I have only heard of one, and I do not propose to detain the House any longer. These witnesses were able to come before us; they were examined without their names being disclosed. They were A, B, C, D, E; they were called by the critics. And the hon. member for East Herts was invited to call any witnesses that he chose—any witnesses. He was not only invited to call any witnesses. He was pressed over and over again to say whether the cases he brought before the Committee were those upon which he relied and were those to which he attached any importance. He was pressed by the learned judge to say whether he had any more cases to which he attached any importance at all, and he said he had not. He was asked whether he had any more documents to produce, and he had none. Of course, if a document had been produced to the Committee, we should have been able to see who was responsible for the document, and if the person was available we could have brought the person before us. The report which the hon. member has mentioned to-night we have never heard of. When there was a chance of their being cross-examined, he never mentioned them to us at all. We had such evidence as was available to us. We had the whole of the evidence that could be brought before us, and upon that we had to decide.

I do not propose to go into the question of the engine to which the hon. member has referred. I can only say this: that upon that we have not yet reported, therefore it would be most improper for me to offer anything at all to-night. We have only reported what our opinion is as to the "murder" charges. We have not yet reported upon any of the much wider questions that came before us, or the wider criticisms which came before us. Therefore I do not propose to say a word about them. I will only say that we have had a very large body of evidence with regard to the "B.E. 2 c," which is the machine the hon. member has most faithfully attacked, and with regard to the engine designed by the Royal Aircraft Factory. As the hon. member has once again used expressions which are calculated to cause considerable disquietude not only among the public but especially among those who have friends and relatives in the Air Service, I think I am entitled to say, without intimating in the slightest degree what the finding of the Committee may be, that the evidence with regard to that engine, its reliability, its usefulness, and with regard to the machine generally does not coincide with that of the hon. member. He may be right; they may be wrong. That is another matter. It would not be right for me to go into further detail of anything the hon. member has said, but I did wish the House to appreciate fully exactly what the Committee was doing, the methods it was adopting, and that we were attempting, as far as possible, to obtain all the information we could, and to do it, as far as possible, without disclosing the identity of any witness or of anybody who chose to come before us. I may say, in conclusion, that we have not yet finished. There is still an opportunity for the hon. member if he thinks that there is any evidence that he can bring which we have not yet had. If he thinks there is anything he can tell us that we do not know, we will welcome him. He can come, and he will have the same facilities to give his evidence and the same safeguards for any witnesses he may bring that he has had all through the investigation.

Major Baird (*representing the Air Board*): Everybody sympathises with the relatives and friends of people who have lost their lives as the result of Zeppelin raids; but we are at war, and that unfortunately involves loss of life. Up to now there have been thirty-four such raids. In ten no casualties occurred, and the total number of persons killed in the remainder was 334 civilians, and 50 military. That loss of life is very regrettable, but no one can say that it has had any influence on the conduct of the operations. The military damage caused by the raiders has been absolutely nil. I have received from the Commander-in-Chief and from my right hon. friend the authority to state that, if any hon. member who desires to be reassured or seeks information with regard to the defences in his own locality will come to the Air Board, the Board will satisfy him to the best of its ability. The Zeppelins have not got off so unscathed as people might imagine, and this is rather important to remember. We have

destroyed, officially reported—in the "bag"—so to speak—seven of them. Five others have been damaged to such an extent that there is every reason to hope that they have been practically destroyed, but it is unwise to count them if you cannot be absolutely certain about them. The Allies, as a whole, have accounted for thirty-five Zeppelins. When you come to count the amount of damage that has been done, I am bound to say that I do not think we have any cause to complain.

Mr. Billing: Ask Admiral Jellicoe.

Major Baird: You must remember that the Germans have been preparing for forty years for war, and we have been preparing during the past forty years for perpetual peace. You cannot suddenly improvise defences to make up for the time and the opportunities you have lost, and the money you did not spend in all those years. What reception would any hon. member have got in this House, on whatever side he sat, if, four years ago even, he had suggested that we should spend £5,000,000 or £6,000,000 on defences against aircraft? We must make the best of it; the best of it is pretty good, and a good deal better than it is represented by hon. members. And hon. members should remember this, and it is necessary that they should realise this—it is very important—that the allocation of anti-aircraft guns, and of all artillery, must necessarily remain in the hands of the General Staff. They have to consider the whole problem from the military point of view. There is no possibility of considering it from any other point of view. You are waging a war, and you have not only got to consider the requirements of this country, but those of our Expeditionary Force in France, and of all the forces which we have operating in other parts of the world. You have to consider that problem as a whole, and to distribute your armament and defences in such a manner as to render the most efficient service, and to contribute to the best of our ability to defeat the enemy. That is the only possible way to look at it. The greatest service which hon. members can render—I hope they will allow me to say this—if they are not satisfied with the defences in their locality, or if they do not know what the defences are—is to come to us, to enable us to have the information given to them, and when they go down to their locality, to do their utmost to satisfy their neighbours and friends who live around them that everything possible is being done that can be done in the circumstances to secure them.

I do not know that I am called on to make any remarks with regard to the hon. member for East Herts. I wish he would remember that, though he is anxious for a reform of the Flying Corps, so am I. I should not be here if I were not. I approach the problem from a different point of view. But it really is no use his continuing these wild statements, because he has had a Committee set up to consider his complaints. The system of the hon. member seems to be this. A Committee is appointed to investigate the charges he makes. He is dissatisfied with the findings of that Committee, and he constitutes himself an Appeal Tribunal, and gives the appeal in his own favour. I do not think that is very convincing.

Mr. Pringle: He gets an article into a Sunday paper.

Major Baird: I know the hon. member is identified with the Press. But all these inquiries take up the time of officers who would be otherwise employed. People talk at large, but let us be business-like and, when the matter has been inquired into, accept the decision of the Committee. Who were the Committee? They were a very distinguished judge, two experienced and respected hon. members of this House, a very distinguished general, a lawyer, and two engineers. The Committee sat for twenty-two days. The hon. member occupied the whole of four days with the Committee, and part of two other days. That does not account for the time that he took up in cross-examination and examining witnesses. What Flying Corps in the world can show the record of our Flying Corps? I cannot imagine why the hon. member should use such expressions as he did, with all the experience and the very honourable record he has. Undoubtedly it does create a sense of disquiet and anxiety among the parents of these glorious young men who are serving in our Flying Corps. Moreover, it is an anxiety which is not shared by the men behind the engines. It is quite gratuitous on the hon. member's part. The engine to which I think he referred—R.A.F. 1a—is one which may have all the merits he described.

Mr. Billing: The report was made last month.

Major Baird: I prefer to have the report of hundreds of officers who fly these engines, and not the report of an individual who, through a gross breach of confidence, has

communicated with the hon. member, and who has gone down in the course of confidential work for the Government and made a report. He is not an expert on aeroplane engines. I am not going to discuss the merits or argue with the hon. member as to the value of the two reports. On the one hand you have the men who fly the engines abroad, and who say they are good engines. After all, they always "get you home"—that is the expression used in regard to them. On the other hand, you have the report to which the hon. member has referred. What earthly service is rendered by the hon. member to us, a country at war, who are building up day by day this Flying Corps, which is doing the most marvellous work? Nobody will deny that.

Mr. Billing: I say that the majority of the pilots do not approve of that engine.

Major Baird: The fact remains, if I may bring in a personal matter, that I have had much more experience of the Flying Corps than the hon. member, particularly that part of it dealing with engines. Obviously he is misinformed.

Mr. Pringle: The hon. and gallant gentleman has put the question to me whether I speak as an expert. The question put did not relate to any expert knowledge. It was as to the opinion of the men who do fly. I assert that their opinion is that of the hon. member for East Herts.

Major Baird: What is the hon. member's qualification for speaking as an expert.

Mr. Pringle: I am not.

Major Baird: I do not minimise for a moment the question whether the engine is good or bad, because it would be a scandal to send men up habitually to do work with bad engines if you

can send up better ones. But we do not do anything of the kind. [Interruption.] The hon. member can go on repeating that as long as he likes.

Mr. Deputy-Speaker (Mr. Whitley): The hon. member (Mr. Billing) was listened to in complete silence in the long speech he made. The least he can do is to listen to the answer.

Mr. Billing: Is it not reasonable if the hon. gentleman makes a definite statement that I should have a right to express my disagreement?

Mr. Deputy-Speaker: There is a good deal more than that. The hon. member keeps up a running commentary of interjections which he has no right whatever to do. That is what I am asking him to refrain from.

Major Baird: I am authorised by the Secretary of State to extend to any other member the invitation I have already given, with a view to satisfying their friends. They must expect Zeppelin raids. As regards the specific points which have been raised, there is the question of lack of policy. At the beginning of the war, it is true, home defence was in the hands of the Navy. Since the beginning of this year it has been entirely in the hands, so far as land defences are concerned, of the Commander-in-Chief of the Home Forces, and he has a very complete scheme of aerial as well as other defence which is being carried out as rapidly as the guns and aeroplanes required can be provided. That has been arranged on a systematic plan, and I give the hon. member the assurance that no gun will be removed. I do hope that the hon. member will take this assurance that everything has been done, and is being done, to secure the best possible means of dealing with a very important matter.

LORD MONTAGU ON NEW ZEPPELINS.

At a meeting held at Bury St. Edmunds on August 23rd, with the object of starting a local branch of the Navy League, Lord Montagu of Beaulieu gave an address on Imperial Air Policy. In the course of this he referred to improved Zeppelins, and said these new airships had four points in which they were improvements—greater range, greater carrying capacity, greater speed, and greater power of climbing, a very important point. In round figures they had a capacity of nearly two million cubic ft., they were 780 ft. long, with a diameter of not quite 80 ft., and a maximum speed of 65 miles an hour, with a cruising speed of 35 miles, which was the most economical speed. Their radius of action at half-load was 3,000 miles, and they had a carrying capacity in bombs of about five tons as a maximum for coming over to England. They were also able to ascend to about 17,000 ft. when their load was discharged and all the engines, six or seven, were working. At 17,000 ft. he was quite safe in saying they had very few anti-aircraft guns that could do very much harm. Moreover, a Zeppelin at 17,000 ft., though it might have great difficulty in hitting a definite place, had an advantage in attacking large areas such as Cambridge, Norwich, or London, in that they could not fail to hit and do damage. The engine-power of the new ships was over 1,500 horse-power, and they had several quick-firers and machine-guns in the bow and stern, and guns on the top to ward off aeroplanes. The crew would number about 30 or 35. That showed to what extent the Germans were relying, he hoped falsely, upon Zeppelins as a means of harassing them and showing their military power. Of these new monsters, three or four would be available by about the beginning or middle of October, and from his information two of them had already been manœuvring, one over the North Sea and the other over Germany.

Turning to what England was doing, Lord Montagu said that it would not be right of him to say that he thought the Government were wholly to blame. What really happened was that at the beginning of the war very few people realised that the menace was a serious one at all, and even at present he said deliberately that the greatest use of airships in his opinion would be in the future not the bombing of defenceless towns, but as eyes of the Fleet. If they had a proper service

of rigid airships to work as eyes for the Fleet, there would not be half the necessity for imperilling their cruisers which acted as scouts. It was a curious fact that nearly all the cruisers they had lost since the beginning of the war had been out on missions of reconnaissance.

Dealing with the work at the Front, Lord Montagu said they were making more raids upon important points on the enemy's lines of communication and depôts, and already some of the Zeppelin sheds had been wrecked with good effect, and they had aeroplanes which were faster, and therefore could tackle the much-famed Fokker. Already a certain type of new aeroplane which had been lately working at the Front had accounted for no less than 27 Fokkers since it had been flying in France.

Regarding the Royal Naval Air Service, Lord Montagu urged that there should be a Naval Air Lord on the Board of Admiralty, and that was one of the reforms the Parliamentary Air Committee would press for when Parliament met again in October. The Parliamentary Committee was on friendly terms with the Air Board, of which Lord Curzon was the chairman. Before long he predicted there was danger of a crisis, because the views of the Air Board would not coincide with the views of the Admiralty and the War Office. Then would be the time for the Government, urged on by Parliament and the people of the country, to decide that the alert and progressive Air Board should be free from any service jealousy and inter-departmental quarrels and the chaotic conditions which existed at present.

On the motion of Capt. Alan Burgoyne, M.P., seconded by Mr. P. J. Hannon, the following resolution was passed:—

"In the opinion of this meeting, representative of the people of Suffolk, the adoption of an Imperial air policy following upon the war is a national question of pressing importance; the construction of a fleet of large, rigid airships should be promoted by His Majesty's Government with all the expedition possible; the necessity of co-ordination of activities between the Admiralty and the War Office, in order to increase aircraft efficiency in all its branches, is strongly recommended to the Cabinet; and that that object can best be achieved by enlarging the powers of the Air Board."

Rogers began descending, and, to avoid the possibility of collision, Lieut. Saundby "flattened out" and the propeller struck the tail of the other machine, which, becoming unmanageable, nose-dived to earth. Lieut. Saundby's machine spiralled safely to the ground.

The jury returned a verdict of accidental death, with no blame attaching to anyone.

The Fatal Mid-Air Collision.

At an inquest on Lieut. G. Rogers and Second-Lieut. C. de Frece on August 23rd, Second-Lieut. W. S. F. Saundby said he was flying at a height of 2,000 ft. when he was overtaken by the machine piloted by Lieut. Rogers. Thinking Lieut. Rogers desired him to fly as target for his camera attachment, he did so, afterwards dropping 300 ft. Lieut.

AIRISMS FROM THE FOUR WINDS.

THE United States has just voted about \$14,000,000 for their aircraft fleet, which is not so bad during peace times. Wish our side had been as generous in the days gone by. One thing, if the war goes on for about another couple of years, as some folk seem to think, we'll surely have to go one better, so as help us annex America. It will be the only way out of it. They've got—or will have by that time—all our money, and anyway annexation is about the simplest way for readjusting the balance, as the whole nation will probably be so fed up with wealth and ineffectiveness through over-indulgence, that it would be a charity to relieve them of it that way, so they may pull themselves together again, out of the lap of war-begotten luxuriousness. President Wilson knows his business.

THE R.F.C. can fly, but they cannot play cricket; or was it their unlucky day? On Saturday they could only make 13 against the 13th Reserve Cavalry, who totalled 73 runs. Corpl. Coleman took five wickets for six runs and Pte. Murgatroyd the other five for seven.

THE old type Wright control has been responsible for a good many things.

FOR instance, the combination of using warp and rudder simultaneously has figured prominently in patent law suits in America.

LATELY it has been the (innocent) cause of a new pupil coming in for a good deal of "ragging" out Hendon way.

THE Wright-type rudder lever, mounted as it is on the top of the warp lever, does remind one of motor car practice. So, apparently, thought the pupil, when he innocently asked if that little lever put the brake on.

SORRY to hear that W. L. Brock, the winner of the three great air races in 1914, has retired from actual air work. Early in the war, it may be remembered, Brock returned to his native land, U.S.A., where he was engaged in testing and other branches of piloting, and according to report received Brock had a mishap in landing, the machine turning over, the hot radiator water scalding him pretty badly.

FROM what we can gather, he is not to do any more actual flying, but his services are turned to good account in another direction, as he is now working in the drawing offices of one of the American aircraft firms. He will, without doubt, give a good account of himself, for, although it may not be generally known, Brock was as well versed in the theory of design as he was in the handling of machines built by others.

PUPILS are now being drafted out by the War Office to the various civilian schools in batches. On Saturday last some of them had their *baptême de l'air*, while others were receiving useful instruction in erecting and rigging. Altogether our one time civilian aerodromes are assuming quite a military aspect just now.

THE aeroplane for business purposes is not so far off as some people would imagine. Already there are several instances on record of it being employed in preference to other means of locomotion. Not long ago a Staff officer from the War Office had occasion to go to the west of England on matters relating to a new school. What was more natural than that he should go by air? Which is exactly what he did. A sign of the times, we should say.

SHARK-SHOOTING from a flying boat is the latest form of sport hailing from America.

THE Gallaudet 300 h.p. bisected-fuselage-pusher-hydro-biplane, illustrated in "FLIGHT" the other week, has flown. It was tried out by Pilot McCulloch near Norwich, Conn., towards the end of July, and put up quite a creditable performance, making 90 m.p.h.

LOOKING remarkably well, Ding was having a day in town last week as a change from being up in the air most of his time testing. Mentioned a 100 h.p. monoplane Blackburn's are building for him, and threatens to bring it to Hendon and make some of us sit up.

DING had great things to say about the B.E., of which he has been testing quite a lot. In his view you can do what you like with them except play fool tricks near the ground. Should like to see him in that new stunt of his. High up for a tail slide, he holds her so she can neither tail-slide nor nose-dive, but just gently floats downward so long as he cares to hold her there. Others thinking of copying, please remember that he said "high up."

DON'T quite see how the elevator could keep a machine from nose-diving when there is little or no forward speed on, but there you are, Ding says he does it. *Ab uno disce omnes.*

THE new L. and P. single-seater biplane, which is to be fitted with a 50 h.p. Gnome, will form a good stepping-stone to the scouting type of machine that many of the pupils will have to fly after leaving the school. Its appearance in public should only be a matter of a few weeks now.

FOR some little time one clear indication of the entry of Roumania in the war against the Germanic Powers has been the blue shades on the lamps of Bucharest as a protection against Zeppelins.

MISS KATHERINE STINSON may be going to Australia before long.

ONE feature of her "show" is a race between a machine piloted by herself and a Peugeot racing car, with Dario Resta at the wheel. Some show!

THEY raced at the Sheepshead Bay track, New York, for the "Championship of the Universe" recently. Some enterprise!

THE *Brooklyn Eagle* says Miss Stinson "won by inches," but the *New York Press* puts it as "several yards." Some close measuring!

A GERMAN writer, trying to make our flesh creep with tales of Super-Zeppelins, closes ecstatically with the words: "Woe to you Paris, woe to you London." To which we reply: "Whoa, Zep!"—*The Star*.

THE "Pickles-Prodger" combination is still going strong, and both partners are, and have been for some time past, extremely busy testing various kinds of buses. Some of these latter are fair startlers according to the reports of both units of the combination.

IT is rumoured that a third partner is being joined up shortly—but there . . .

ANYWAY, here's congratulations to you and yours, Sydney Pickles!

As a rule aero-passengers thoroughly enjoy their first experiences of flying, but the initiate who was heard to say at the conclusion of a flight—a rather "bumpy" one, it is true—"Why on earth do they call them 'joy rides'?" must have been an exception.

GOOD news to hand of Louis Noel of Hendon, who says things are very lively in the air just now in the Near East.

HE won great distinction in the recent bombardment of Sofia, whereby he was promoted to the rank of Sous-Lieutenant. Well done, Noel; may you attain still higher altitudes.

ANOTHER recruit to the ranks of aeroplane constructors has been obtained. H. C. Nestler, of portable hangar fame, has blossomed out with one or two very promising designs.

ONE of these is a very neat little tractor scout, which is expected to do—no, 'praps better to dissemble these Defence of the Realm Censor days.

AFTER coming safely through the Zep. raid the other night, a house on the outskirts of London was struck by lightning. It nearly demolished the chimney-stack, sent the fender and fireirons flying across the room, and covered the occupants with soot. A bomb might have been worse, of course, but it does seem to be something like the retired steeplejack who fell downstairs and broke his neck, doesn't it?

Personals

Under the above heading will be published weekly particulars of a personal character relating to those who have fallen or have been wounded in the country's service, announcements of marriage and other items concerning members of the Flying Services and others well known in the world of aviation. We shall be pleased to receive for publication properly authenticated particulars suitable for this column.

Casualties.

Second-Lieutenant H. FLOYD, R.F.C., who has died of wounds in Germany, where he was a prisoner of war, was 21 years of age. He was the only son of Dr. Floyd, of Kilkeel, Co. Down, and was formerly a despatch rider in the Royal Engineers. He was severely wounded on August 9th, while flying over the German lines, and was taken prisoner.

Flight-Commander BASIL HALLAM RADFORD, better known to theatre-goers as Mr. Basil Hallam, the original "Gilbert the Filbert," who was killed in France on August 20th, was attached to the Kite Balloon Section of the R.F.C. The balloon in which he was observing broke away, and, having thrown all the papers overboard, he tried to descend by his parachute. It failed to open, however, and he received fatal injuries. Mr. Hallam, who was educated at Charterhouse and Oxford, made his first appearance on the stage under Sir Herbert Tree, in 1908, playing in a number of Shakespearean productions. He scored considerable success as the Hon. Archie Graham in "The Blindness of Virtue"; but the production of "The Passing Show" at the Palace Theatre in April, 1914, established, in a single night, his position in the first rank of light comedians. Mr. Hallam played the part of a typical pre-war "nut," and his song, "Gilbert the Filbert" was soon sung and whistled all over England. With Miss Elsie Janis he also appeared in the next Palace revue, "The Passing Show of 1915," and there was great enthusiasm at his farewell performance in June of last year. Mr. Hallam was also a capital dancer, but he danced with difficulty, for an old injury to his leg necessitated the wearing of a steel plate. It also prevented his joining an infantry regiment, as he wished to do at the outbreak of war. He was the youngest son of Mr. and Mrs. W. T. H. Radford, of 25, Park Crescent, W. (who already have to mourn the loss of another son, who was in the Berkshire Regiment). Captain Radford first went to the Motor Transport service, and afterwards joined the Kite Balloon Section, R.F.C., last summer, being appointed Flight-Commander (Temporary Captain) on June 9th, 1916. A memorial service will be held on Friday of this week (September 1st) at St. Paul's, Knightsbridge, at 12 noon.

Lieutenant WILLIAM STOBART ("Buff"), Durham Light Infantry, attached R.F.C., who was killed on August 24th, in his 22nd year, was the second son of Mr. and Mrs. F. W. Stobart, of Bromham Hall, Bedford. He was born in Winnipeg, Canada, and was educated at Rugby and Jesus College, Cambridge, where he rowed bow of the Head of the River boat in the Lent Races of 1914. He also rowed seven in his college eight in the final for the Thames Cup at Henley the same year. He was in Canada when war broke out, but he immediately returned to England, and joined the Durham Light Infantry. He had been twice slightly wounded, and was appointed to the R.F.C. last April. Gaining his wings in less than two months, he joined his squadron abroad at once.

Captain G. W. WEBB, Royal Irish Rifles, attached R.F.C., who was reported missing on July 1st, is now stated to have been killed on that date. A letter received from Lieutenant Tudor-Hart, Northumberland Fusiliers, attached R.F.C., now a prisoner of war in Germany, who was Captain Webb's observer, shows that they were flying for an hour over about 6 miles of German lines when they were attacked by a number of enemy aeroplanes, the Captain being shot dead. He had served in the 2nd Battalion Royal Irish Rifles until last year, when he was wounded, and he joined the Flying Corps after he had recovered. He was the son of the late Mr. R. T. Webb, Rath House, Knock, Belfast.

Second Lieutenant HUMPHREY PEARMAN, R.F.C., died on August 13th as the result of burns caused by the fall of an aeroplane owing to engine trouble. The branch of a tree penetrated the petrol tank while the machine was falling, and the aeroplane burst into flames. Mr. Pearman, who was the

younger son of Mr. D. Pearman, of Elm Cottage, Purley, joined the H.A.C. in August, 1914, went to France in the following month, and became Second Lieutenant in the 2nd Battalion Leinster Regiment in March, 1915. He was wounded at Hoge last August, invalided home in September, and entered the R.F.C. last March, receiving his "wings" in June.

Missing.

Flight-Commander GEORGE B. DACRE, D.S.O., R.N., who is reported as missing, was one of our pioneer airmen, for he took his certificate on November 28th, 1911, on a Bristol biplane at the Bristol School, Salisbury Plain. He joined the Naval Air Service and became Flight-Lieutenant in December, 1914, subsequently going to the Dardanelles, where he gained the D.S.O. in November, 1915, for flying over the Gallipoli Peninsula and carrying out a difficult operation in spite of serious trouble with his machine, displaying great nerve and courage in prosecuting an attack under very adverse conditions. Flight-Commander Dacre is the son of Dr. John Dacre, of Eaton Crescent, Bristol. He is 24 years of age, and was educated at Clifton. Two other brothers are serving their country, one in the Royal Field Artillery and the other in the R.A.M.C.

Married and to be Married.

Second Lieutenant W. EDWARD BIRCH, son of Mr. James Birch, Sefton, of the R.F.C., who has a German Fokker to his credit in France, was married at Ormskirk Parish Church on August 23rd to Miss EVA STRETCH, daughter of the late Mr. Edward C. Stretch, auctioneer and estate agent, of Ormskirk.

Captain ARTHUR TRAVERS HARRIS, Flight-Commander R.F.C., was last Wednesday married to Miss BARBARA KYRLE MONEY at St. Augustine's Church, Queen's Gate.

A marriage has been arranged, and will shortly take place, between CUTHBERT JULIAN ORDE, Lieutenant, R.F.C., second son of Mr. and Mrs. Julian Orde, and Lady EILEEN WELLESLEY, younger daughter of the Duke and Duchess of Wellington.

An engagement is announced, and a marriage will shortly take place, between Flight Sub-Lieutenant ARTHUR WATTS WILLIAMS, R.N., son of the late Mr. James Williams, of Brynglas, Newport, Monmouthshire, and Mrs. Williams, of 37, Courtfield Road, S.W., and LETTICE MABEL, only daughter of Mr. WILFRED BECKER and Mrs. BECKER, of Bowden Hall, Chapel-en-le-Frith, Derbyshire.

Items.

SIR WILLIAM BEARDMORE, who has been appointed one of the Science Committee for reviewing, in conjunction with a Committee on Modern Languages, our system of education as a whole, is chairman and managing-director of Messrs. William Beardmore and Co., engineers, of Parkhead Forge, Glasgow, chairman of Messrs. Arrol-Johnston, a director of Messrs. Vickers and several other important industrial undertakings. Probably no more valuable selection could have been made for this highly important Committee than Sir William.

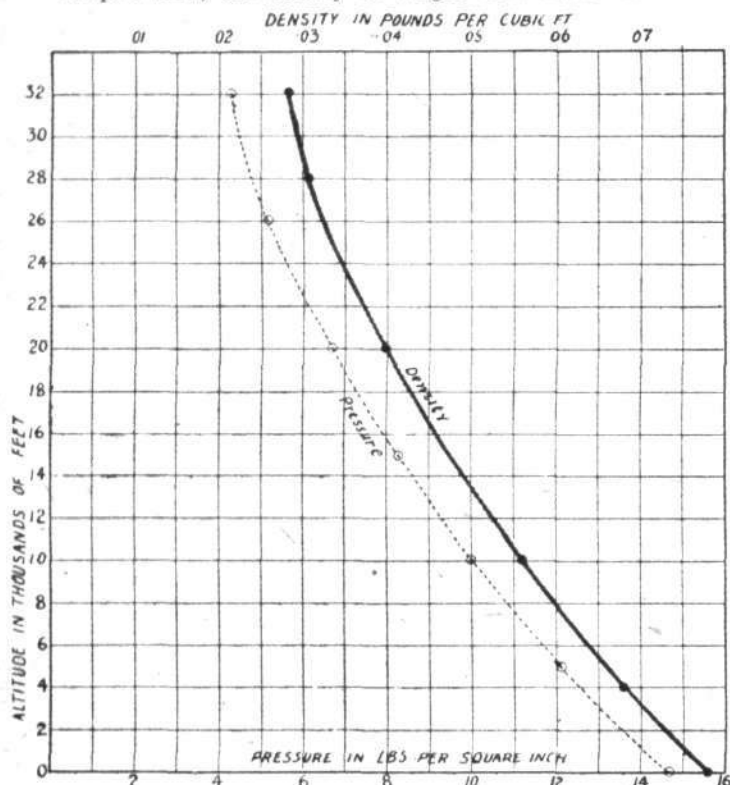
The will has been proved of Flight-Lieutenant GEOFFREY RICHARD HENRY TALBOT, R.N.A.S., of Little Gaddesden House, Berkhamsted, Herts, who was killed at Dover on June 29th when starting on a flight to France, younger son of the Hon. Alfred Talbot, grandson of the 18th Earl of Shrewsbury, at £13,879.

The managers of the Princesses' Theatre in Kent, which was erected by Messrs. Vickers, Ltd., have sent a cheque for £75 7s. to Princess Victoria of Schleswig-Holstein's Y.M.C.A. Auxiliary Committee for providing concerts for the troops at the hospitals and recreation huts in England and France. This sum represents the total amount received from the sale of tickets for the opening performance.

ANSWERS TO CORRESPONDENTS.

If in doubt about anything aviatric, write to "FLIGHT" about it.
H. C. B. (King's Lynn).

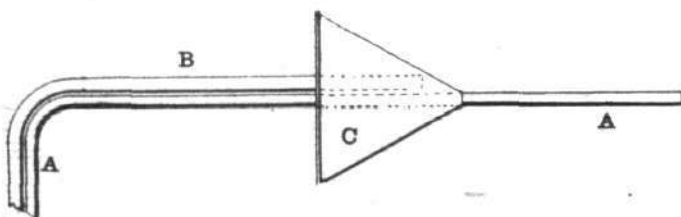
The accompanying graph will show you the relationship between altitude and density, and altitude and pressure. If it were not for the fact that the temperature decreases with altitude, pressure and density would decrease at the same rate. The temperature decreases at a fairly well defined rate, although subject to very considerable variations locally. From the figures available of temperatures at different altitudes, it is possible to calculate, by taking account of these temperatures, the density or weight of a cubic foot of air



over the same range of altitudes. To do this the general formula $p v = G R T$ is employed, in which p = the pressure per square inch, v = the volume, G = the weight, T = the absolute temperature, and R = a constant, which for air has the value 0.37. By finding from this equation the weight of a cubic foot of air at the temperatures and pressures corresponding to the various altitudes, the altitude-density curve is obtained.

N. W. H. (Beddington).

Various types of Pitot tubes are in use for measuring the air speed of an aeroplane. A form commonly employed is shown in the accompanying diagram. It consists of a Pitot tube, A, facing the direction of flight, and of a suction tube, B, having its mouth sheltered behind the cone C. The two tubes



are connected up to the two sides of an indicator, which shows the speed of the machine. The difference between the static pressure and the pressure in the cone at the mouth of the suction tube is proportional to v^2 .

It should be realised that the speed measured by the Pitot tube is the relative speed between the machine and the surrounding air, and not the speed relative to the ground. Thus, if a machine has a speed of 60 m.p.h. and is flying against a wind of the same velocity, the Pitot tube will still indicate 60 m.p.h., although the machine is stationary in relation to the ground.

J. B. (Chichester).

When a machine "bounces" on landing it may be due to

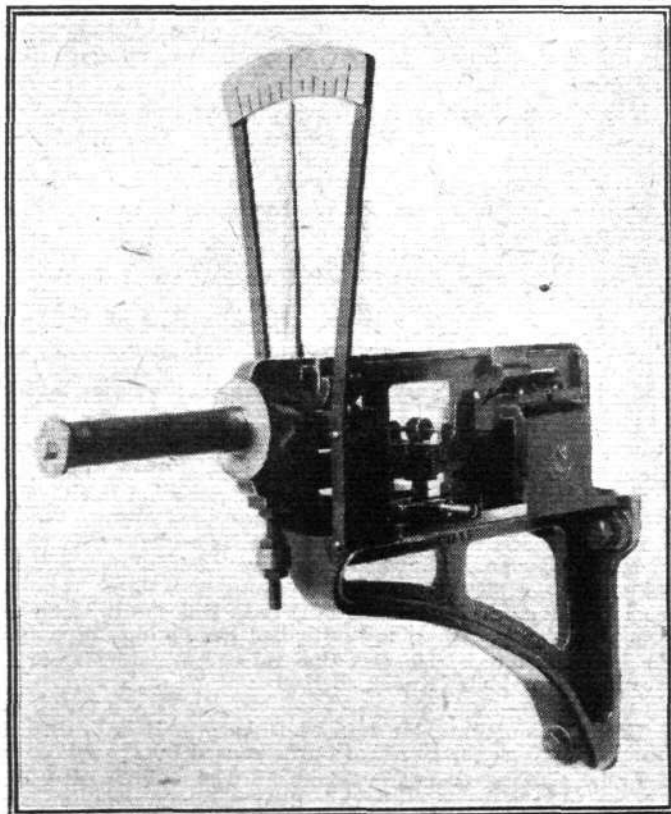
various causes. If the landing is somewhat heavy, almost any machine that is not fitted with means for absorbing the rebound will bounce. At other times a machine may go through a series of slight bounces in quick succession. This is not infrequently caused by too hard and stiff shock absorbers. Good quality rubber does not have so great tendency to do so.

In some machines the wheels are a considerable distance in front of the centre of gravity of the machine. The usual distance is about 1 ft. If greater than that there is the danger that on landing the tail will drop too rapidly, thereby increasing the angle of incidence of the wings, which will, if the machine still has sufficient speed on, result in her taking the air again, sometimes making a leap of several feet in height.

TO BALANCE PROPELLERS.

It is, of course, a well-known fact that, in order to ensure smooth running, it is of the utmost importance that a propeller should be perfectly balanced. Any small deviation from this desirable state may easily result, not only in marked vibration, but may even assume proportions which would in a short time ruin the engine. For instance, if a propeller which weighs 30 lbs. and has a diameter of 8 ft. rotates at a speed of 1,200 r.p.m., and its centre of gravity is situated one-tenth of an inch from the propeller axis, the centrifugal force will be $\frac{30 \times 1,600 \pi^2}{32 \times 120} = 125$ lbs. approximately. Test-

ing the balance of a propeller is, therefore, an operation requiring very delicate instruments. We have received from Messrs. W. and T. Avery, Soho Foundry, Birmingham, the well-known manufacturers of weighing and testing machines of various kinds, particulars of a new propeller-balancing apparatus, which works on the static principle, the propeller being revolved axially instead of diametrically. Friction is reduced to a minimum by the use of knife edges. The instrument is mounted on an iron bracket, and is provided with a zero pointer and graduated scale. Propellers of any weight and diameter can be tested on this apparatus, which will, we understand, be on view shortly at the London show rooms of the firm, when propeller manufacturers and others interested would be well advised to avail themselves of the opportunity of an inspection.



The Avery propeller balance testing machine.

AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION.

British.

General Headquarters (France), August 23rd, 9.13 p.m.

"When the weather cleared yesterday evening the enemy's aircraft, which displayed unwonted enterprise, were engaged in large numbers with most satisfactory results. Fighting was continuous until dusk, and at least four hostile machines were destroyed, and many others driven down, damaged and apparently out of control. Others were pursued to their aerodromes. We suffered no casualties.

"Despite continual fighting, a reconnaissance was completed successfully, and bombing raids were carried out against sundry points of importance."

General Headquarters, August 25th, 10.45 p.m.

"Two aeroplane raids were carried out by us against some of the principal railway sidings on the enemy's lines of communication. Several trains were hit and considerable damage caused to enemy's rolling-stock. Other points of military importance were also bombed.

"Hostile aircraft generally avoided combat, but there were some engagements in which a number of enemy machines were damaged and driven down. One of our machines was brought down by enemy guns."

General Headquarters, August 26th, 10 p.m.

"Our aircraft carried out many attacks on points of military importance behind the enemy's lines, dropping in all about 5 tons of bombs. One hostile machine was brought down, and at least one other driven down damaged. Two of our machines are missing."

War Office, August 26th.

"*Salonica.*—Our aeroplanes bombed enemy camps at Kula Topolca and Prosenik (about 6 miles south of Demir-hissar)."

General Headquarters, August 28th, 9.38 p.m.

"On the evening of the 26th a heavy storm overtook eight of our aeroplanes, and five of them have not returned."

French.

Paris, August 22nd. Afternoon.

"Yesterday one of our pilots brought down an Albatros, which was smashed on the ground near Languevoisin, south-east of Nesles (south of the Somme). Four enemy biplanes, which were attacked at close quarters, fled in a damaged condition. Last night one of our squadrons dropped 79 bombs on the railway stations and lines of Tergnier and Noyon, the waterworks at Pont l'Évêque (Oise) and the station at Appilly. Our pilots noticed that violent fires broke out in these places. All the machines returned safely."

Paris, August 23rd. Afternoon.

"On the Somme front Adjutant Dorme brought down his fifth German aeroplane, which fell in the direction of Moislains (north-east of Péronne). Four other enemy aeroplanes which were fired upon by our machine guns came down severely damaged in their own lines."

Paris, August 23rd. Evening.

"Adjutant Dorme brought down his sixth aeroplane, which fell in the region of Marche-le-Pot, north-west of Chaulnes. Another enemy aeroplane was brought down in the region of Roze."

Paris, August 24th. Afternoon.

"On August 22nd, on the Somme front, one of our pilots who was attacked by three enemy machines succeeded in beating off his adversaries and brought down one of them, who fell crashing to the ground near Athies (region of Hem)."

"Yesterday an Albatros was brought down by our men in the neighbourhood of Epoye (north-east of Rheims). Two other German machines dived headlong into their lines, one in Champagne and the other in the Vosges."

Paris, August 25th. Afternoon.

"Yesterday one of our pilots brought down a German biplane, which fell crashing to the ground near Gremecy (north-east of Nancy)."

Paris, August 26th. Afternoon.

"On the whole of the front our air service was particularly active yesterday, and fought a number of fights with the enemy, in the course of which it clearly showed its superiority. In the region of the Somme three German machines were brought down, one by Lieut. Nungesser, who thus brought

down his eleventh enemy machine. The second was brought down by Warrant Officer Dorne, being his seventh success up to date. The third enemy machine fell near Pertain. Three other machines were bombarded with machine guns at close quarters by our pilots and came down sharply in a damaged condition.

"Near Craonne our anti-aircraft guns brought down a Fokker. North of Châlons a Fokker which was attacked and chased fell headlong in its own lines and was smashed to bits. In the region of Verdun a German aeroplane was brought down in flames. Towards Mogeville two others were badly hit and came down in a damaged state, one in the Forest of Spincourt and the other near Foamex. In the region of Pont-à-Mousson a Fokker was put out of action.

"Elsewhere two German captive balloons were set on fire by our airmen, one north of the Aisne (in the region of Paissy) and the other on the Somme front towards Mesnil St. Nicaize. Finally it is confirmed that on August 23rd a German captive balloon was brought down by our anti-aircraft guns and fell in flames towards Hézonveaux (in the region of Verdun).

"Last night an enemy aeroplane dropped eight bombs on Baccarat. The material damage was insignificant. One person is reported to have been slightly wounded."

Paris, August 28th. Evening.

"Sub-Lieutenants de Ullin and De La Tour felled their fifth German aeroplane, the former on August 24th and the latter on August 25th."

Russian.

Petrograd, August 23rd. Afternoon.

"Over 100 bombs were dropped by enemy aeroplanes on the railway station of Manevichi."

Petrograd, August 27th. Afternoon.

"Enemy airships flew over our positions on the Drisviaty Lake and dropped bombs, killing the chaplain, Father Joakim Sedletski, while he was fulfilling his pastoral duties."

Italian.

Rome, August 24th.

"Along the remainder of the Front intermittent artillery action and activity of aircraft and reconnoitring detachments are reported. During an air fight above Gorizia one of our Nieuport machines brought down an enemy aeroplane, which fell in flames near Ranziano."

Rome, August 26th.

"One of our air squadrons bombarded the railway station of San Cristoforo, north of the lake of Caldonazzo (Brenta), causing heavy damage. All our machines returned except one. Above Gorizia, after lively air fighting, one of our aviators forced a hostile aeroplane to land in the neighbourhood of Aisovizza."

German.

Berlin, August 24th.

"During the past few days four enemy aeroplanes have been shot down, two of them in air fights respectively at Bazentin and west of Péronne, and the other two by anti-aircraft fire near Richebourg and La Bassée."

Berlin, August 25th.

"Four enemy aeroplanes have been brought down north of the Somme—one each in aerial engagements near Point Faverger, to the south of Varennes, and near Fleury (this latter machine on the 23rd inst.), and one south of Armentières by means of anti-aircraft guns.

"As has frequently been the case of late with regard to Belgian towns, bombs were yesterday dropped on Mons. In addition to important material damage to Belgian property, some citizens were severely injured."

Berlin, August 26th.

"Two enemy aeroplanes were shot down by machine gun fire near Bapaume, and anti-aircraft fire brought one down at Zonnebeke, in Flanders. In air fights two aeroplanes were shot down respectively east of Verdun and north of Fresnes (Wœvre)."

Austrian.

Vienna, August 26th.

"Near Lusern Lieut. von Sielder shot down a Caproni aeroplane."

Turkish.

Constantinople, August 26th.

"A hostile aeroplane mistakenly fired on the British troops with machine gun, keeping up its fire for a quarter of an hour."

From Other Sources.

Reuter's correspondent at Salonica, writing on August 13th, says:—

"A German observation balloon beyond Doiran keeps close watch on our position, and whenever a fresh gun gives a hint of its approximate whereabouts a searching fire from the Bulgarian big guns is certain pretty soon to follow. The sausage balloon keeps constantly altering its altitude, and disappears entirely as soon as an Allied aeroplane heaves in sight."

A Reuter message from Petrograd on August 15th, regarding the line of retreat in Galicia, says:—

"Russian aviators have reconnoitred numerous strong enemy positions on the lines of retreat."

Writing on August 16th regarding the events of the previous day in the Picardy area, the *Petit Parisien* states:—

"With untiring ardour and remarkable success the gunners bombarded the German positions and battery emplacements as indicated to them by our airmen, who at each flight brought back information of such precision that in the great majority of instances within a quarter of an hour of the return of the observing airman our artillery was able to direct a sure and intense fire upon the German 21-centimetre guns, or on groups of lighter guns."

Mr. G. H. Perris, the correspondent of the *Daily Chronicle* with the French armies on the Somme, on August 15th writes:—

"Perhaps the clearest and most important advantage the Allies have had in the Somme offensive is the dominant superiority of their air services. It was an essential part of the plan of the French General Staff that this advantage should be gained at the outset, for an enemy driven out of the sky is half blinded. When the big guns commenced their destructive cannonade of the German trenches, therefore, squadrigas of aeroplanes were sent forward to bring down or drive back the enemy aviators and to destroy the 'sausage' observation balloons. Both sorts of raid were carried out with the utmost daring and success."

"Before the infantry advance began the familiar 'drachen' had been either destroyed or hurriedly hauled down, and the once formidable German pilots dared not show their noses over the French lines. In five days on the British and French fronts 15 captive balloons were destroyed. Meanwhile our

other squadrigas were ceaselessly engaged in their several tasks of bombardment or observation over the enemy's positions."

"That such an important advantage should be seized is comprehensible. It is more difficult to understand how it has been maintained. I do not think our men would suggest that the Germans lack courage, though they are less daring than the French. Many of the best German aviators have been killed, others, no doubt, are kept on the Russian front, for the war of movement requires air scouts more urgently than the siege warfare of the West. Whatever the explanation may be, the fact is beyond doubt. At one point on the Santerre plateau I counted 23 French 'sausages' dragging at a great height upon their cables, and only two that could be German, of which one was doubtful. French aeroplanes of all types came and went on their patrol duties with the freedom of pigeons over a farmyard, but if there was any combat in the air it did not take place over the French lines."

"I visited one of their many aviation parks, and was deeply impressed by the immense progress that has been made during the war on every side of this enterprise under the stimulus of military necessity and individual skill and pluck. The technique of different types of plane and of their engines and machine guns is beyond me; but the handsome, radiant face of the captain who explained to us some of the mysteries of his squadriga of 'Baby Nieuports' spoke volumes. It was a picture of keen intelligence and physical fitness. As we stood by, Guynemer swept down from cloud-land to our feet as easily as a Great Northern driver brings his engine into King's Cross or the middy his steam launch up to the landing at Cowes. He looked fallow, for it is bitterly cold at a height of two miles when you are running at 100 miles an hour; but there is something of nervous strength in the almost girlish figure, a swift certitude of eye and hand that you would feel to be exceptional even if you knew nothing of his record. Aviation is essentially a young man's service."

"The technique is no harder than that of the artillery, perhaps not so hard; but the highest intensity and most perfect balance of youthful physique are more necessary than in any other arm. It is the light cavalry of modern warfare, and along with a chivalry all its own it is developing a whole series of special functions."

"There are the individual scouts whose business it is to serve the field or heavy batteries, watching every shot and correcting the range by wireless or various kinds of signals. Other observers have the more general task of photographing the enemy's lines, so that the whereabouts of a new trench fieldwork or railway, new concentration of troops or guns, may be immediately known. Then there are what the French call *avions de chasse* and cannon-planes, who must seek out and attack enemy aeroplanes and balloons and forbid access to our own lines. Finally, there are the squadrigas of bombardment, whose raids into German territory have become more and more frequent and extensive of late."

"The importance of the mastery the French have obtained in every one of these functions is evident. It means that the offensive army saw twice as much as the defensive, that the costs in life and limb inevitable to an attack upon modern fieldworks were reduced to a minimum, and that the whole depth of the French Front was, and is, comparatively immune from effective bombardment. There is, perhaps, no clearer index of the changing fortunes of the war."

"Some able French writers have been warning their countrymen during the last few days that the Germans are bound soon to attempt a counter-offensive in the West, even if it prove as costly as the ill-starred adventure against Verdun. This is perfectly sound advice. With three-fifths of the German armies nailed down before our trenches, we must at least expect powerful local attacks. But, setting aside the root question of their exhausted reserves, I do not see how they can attempt anything like a large offensive without first winning back at least an equality in the air services. And of that there is no present prospect, at least in Picardy and Santerre."

In a semi-official statement issued in Paris on August 17th, a description by a German prisoner of the bombardment of St. Quentin railway station by the British is quoted. He said:—

"At the end of June, the 22nd Reserve Division, to which my regiment was attached, was sent to rest in the neighbour-



A POPULAR R.F.C. OFFICER NOW IN AMERICA.
—Mr. Phil Rader, editor, artist, printer and publisher of the late amusing journal the *Jersey Brow Gazette*. Lieut. Rader is now in Buffalo instructing Harvard aviation students.

hood of St. Quentin. An order came to us on July 10th to proceed to the Somme front. About 3 o'clock in the afternoon the 1st battalion of the 71st Reserve Regiment and the 11th Reserve Battalion of Jaeger were in St. Quentin Station ready to entrain. We had placed our arms and equipment in the carriages.

"At this moment some British aeroplanes appeared and dropped bombs. One fell on a building full of ammunition and caused a violent explosion. There were 200 ammunition wagons in the station and 60 exploded. The remainder were only saved with difficulty.

"The train which was to have carried the troops, together with all the equipment and baggage, was destroyed, in addition to a large quantity of war materials stored on the platforms. The men, seized with panic, fled in all directions. A hundred men of the 71st Regiment and 80 men of the 11th Jaeger were killed or wounded. It was not before several hours that it was possible to reassemble the battalion of the 71st Regiment, which was sent to rest, and the next day it entrained at another station in order to be entirely re-equipped. Afterwards the battalion was sent to Péronne, where it was placed in reserve before going into action."

The *Times* correspondent at the British Headquarters, writing on August 16th, says:—

"Next to the infantry in his trenches, I am inclined to think that those among the enemy's fighting men who have the worst time nowadays are his airmen. They must try to cross our lines for observation purposes, and if they fly high

they get hunted and beaten down by our machines, while at anything less than the highest altitudes they become the target of our anti-aircraft guns.

"I know one 'Archie' which has brought down two enemy machines in the last four days; and, among all the different branches which are helping in this battle, I am not sure that the men with the anti-aircraft guns have had their proper share of appreciation. It is they who keep the enemy machines up too high for useful observation, and night and day they lead a nerve-racking life."

Mr. Henry Wood, the Paris representative of the United Press of America, after a visit to the Front, writes:—

"I also visited one of the four aviation camps which protect every dépôt. During my visit scarcely a minute passed without armed aeroplanes either returning from or departing for the German front. The air was literally alive with them.

"Equally impressive was a 30-mile horseshoe of French observation 'sausages' overhanging at a great height the entire battle front, wirelessly directing the French fire. Innumerable French aeroplanes darted in and out among the 'sausages,' crossing and recrossing the German lines every minute. But not a single German aeroplane ever appeared either to drive back the French and attack the 'sausage' or to reconnoitre. Nor was a single German 'sausage' visible to offset the 26 French 'sausages' which I was able to count. Nothing could give a more vivid impression of the undisputed French mastery of the air."



A Six-Passenger Height Record.

THE *Petit Parisien* reports that the Italian pilot, Antonacci, at Milan, on one of the large Italian military biplanes recently took up six passengers to a height of 5,850 metres (19,512 ft.), thus pretty badly beating the record recently made in France by Poiree of 2,800 metres (9,100 ft.).

An Aeroplane Wireless Record.

CLAIMED as a record in wireless telegraphy from an aeroplane, Capt. Clarence Culver, of the United States Army Aviation Corps, during a flight from San Diego to Santa Monica, 114 miles away and back, is said to have kept in touch with his station by sending wireless messages every 3 minutes. The power for the transmission set, which was designed by Capt. Culver, is derived from a generator placed on the lower wing section of the aeroplane and driven by a two-bladed propeller. Aerial wires were hung from the fuselage, with an insulated counterpoise hung from the wings to the tail of the aeroplane. Complete the set is said to weigh less than 40 lbs.

Sheppey a Military Area.

By an order issued last week, the island of Sheppey, including Sheppey, Queenborough and Sheerness, becomes a special military area on and after September 7th. No person other than those able to prove that they are exempted from the provisions of Regulation 29B will be allowed to enter the area without the permission of the Commandant, whose office is in the Garrison Headquarters at Chatham, and permits will not be available for admission by road or ferry between the hours of 9 p.m. and 5 a.m.

A Camera at the R.A.F.

CHARGED at Aldershot on August 24th with being in unlawful possession of a camera and taking photographs within a prohibited area, that of the Royal Aircraft Factory, Farnborough, J. N. D. Latouche was remanded.

Opening of the N.S.W. State School.

SPEAKING at the formal opening of the State flying school at Richmond, N.S.W., on August 28th, Mr. Holman, the Premier, said that funds had been subscribed for presenting five fighting aeroplanes to the Imperial Government, and they hoped to make it half a dozen in a few days. The Government proposed to double these contributions, and within two months it was hoped to have twelve pilots ready to send to England to man the machine. It was expected that the school would turn out a hundred pilots a year. The Governor, Sir Gerald Strickland, said the school was a remarkable example of the keenness and energy of the New South Wales Government to do everything possible to aid the successful prosecution of the war.

During the afternoon, Miss Strickland, daughter of the Governor, and Mr. Holman were taken for flights.

Zeppelins Over Norway.

THE *Berlingske Tidende*, on August 28th, published a message from its Bergen correspondent that a number of Zeppelins had been seen from the west coast of Norway, and two passed over Bergen at a great height, travelling from south to north.

Over Holland as Usual.

IGNORING continued protests of the Dutch Government, Zeppelins continue to cruise over Holland whenever it suits their purpose. Last week one of them on its return from England, manoeuvred over the capital, while others were reported from different parts of Holland. Commenting on this, the *Nieuws-van-den-Dag* says:—

"These cases of violation of territorial rights threaten to become chronic. Sometimes the nonchalance of these gentlemen surpasses the limit between carelessness and impudence." It adds, ironically: "One must appreciate the fact that they do not accidentally drop bombs on Holland."

A pity there is not a good slice of Dutch-Rumanian courage about just now. It might add still a bit more to the larger half of the civilised world which disagrees materially with German violation of the laws of decent men.

Crocodile Tears from Count Zeppelin.

COUNT ZEPPELIN has again been airing his views—this time in the *Deutsche Tageszeitung*. He believes that Germany's superiority in heavy guns, serviceable submarines and Zeppelins will enable her to be victorious against half the world. "If we do not utilise this superiority now," he concluded, "then serious misfortune will befall us." Perhaps, therefore, it's a bit of luck for the rest of the world that Germany's up against more than half of it.

More German "Frightfulness."

PURELY German in idea and execution is the latest German move reported by the Belgian correspondent of the *Journal des Debats*. He states that as a result of a visit of Allied aviators to Brussels the Germans have decided that in future they will place prominent citizens of Brussels, in turn, in the Zeppelin and aeroplane hangars. One day five notable citizens were shut up in the wooden structures, and, in view of the terrible bombardment to which certain parts near Ghent have been submitted, it is not doubted that these measures will be vigorously carried out in future. And then there is talk about trusting to the Huns' honour again some day!

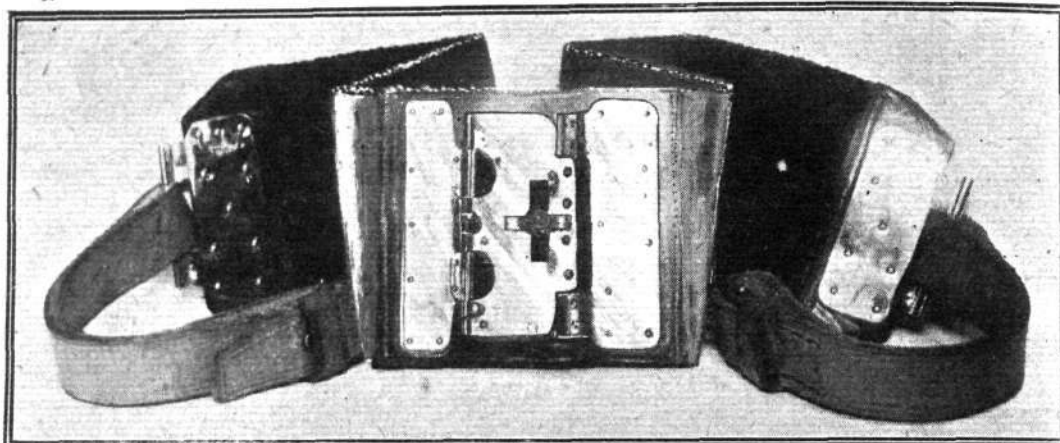
A Zeppelin Reported Damaged.

LAST week the Dutch frontier guards near Maastricht several times fired on Zeppelins which were cruising over Holland. One airship, it is reported, was so seriously damaged in this way, on August 25th, that it had to descend near Liege.

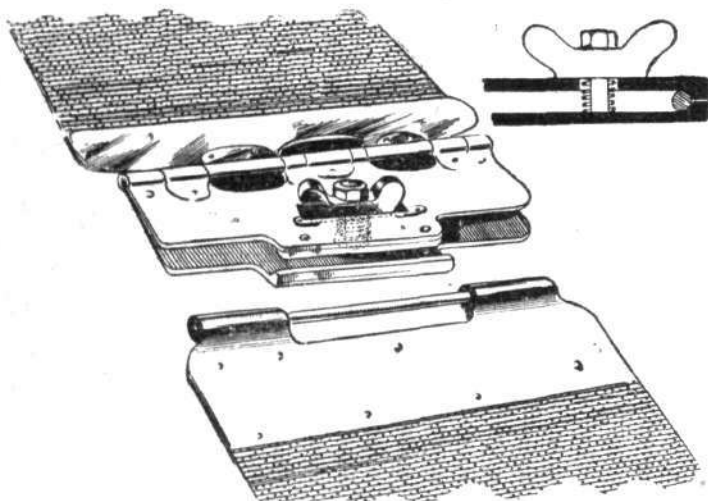
A New Safety Belt.

APART from the question of reliability, the one essential requirement in a safety belt is that it should have a quick-release catch—a fitting which should really be quick-acting not only in name but in its function. Everything in an emergency may depend on this quick-release catch, and several ingenious devices have been evolved and placed on the market from time to time, but many of them have failed to give thoroughly satisfactory service. One of the latest safety belts to be offered is that manufactured by the Aero Safety Belt Co.,

The "Aero Safety Belt."



of 108, City Road, London, E.C., and of which details are given herewith. Here the quick-release catch fitted is not only extremely simple, but, as far as tests can show, is very reliable and efficient. It is only necessary to look at the accompanying illustrations to see that the method employed in the fashioning



Sketch showing the principle of the quick release in the "Aero Safety Belt."

of the catch is such that failure to open is next to impossible. The bar, it will be seen, is caught by the jaws, which are held closed together by a cam action when the fly nut is turned at right angles to the slot. To release, it is only necessary to give the nut a quarter-turn so that it is parallel to the slot and the jaws of the clasp will immediately fly open and release the bar.

Rivets and Eyelets.

It is pleasing to note the way in which many makers of accessories and components are realising the tremendous field which is offered them in connection with aircraft. In this connection attention may be drawn to the fact that the Bifurcated and Tubular Rivet Co., Ltd., of Aylesbury, Bucks, who have specialised in rivets, eyelets, staples, tacks, &c., are prepared to supply any of these items for use in aeroplane building. Makers should send for a copy of their list, which shows rivets, either copper or in other metals, in a great variety of shapes and sizes, either bifurcated or solid, while the range of thimbles and eyelets is no less extensive. At the same time they are ready to quote for any fittings which may not appear in their catalogue, and to place their experience at the disposal of any firms who are in the market for goods

of this description. The firm's London office is at 235, Upper Thames Street, E.C.

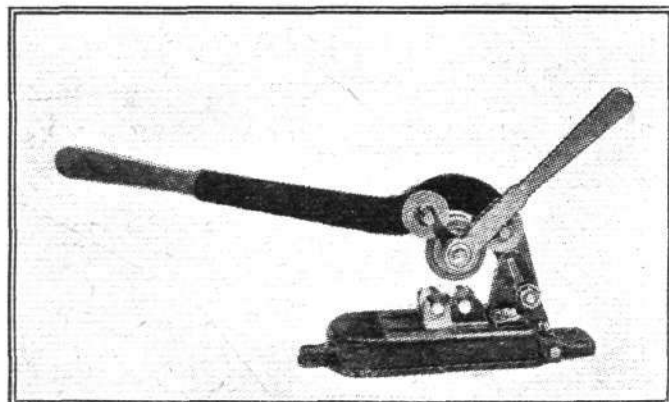
A Gledhill-Brook Telephone Mem.

NOTE should be made of the fact that the telephone number of the London office of the Gledhill-Brook Time Recorders, Ltd., 26, Victoria Street, S.W., has just been changed. The call is now 1310 Victoria.

For Stamping Test Marks.

FOR marking metal parts which have passed their inspection tests, the old-fashioned punch is a very unsatis-

factory instrument, especially when round parts, such as rods, bolts, &c., have to be dealt with. Up-to-date works managers will, therefore, be interested in a little machine which is marketed by the Blackburn Aeroplane and Motor Co., Ltd., Olympia, Leeds—an indication that it is well adapted to the requirements of the aircraft industry. It is



The "Young" stamping machine.

called the "Young" stamping machine, and by its aid it is possible to mark any metal, tube, pins, bolts, plate, turn-buckles, &c., many of which cannot be stamped with an ordinary punch. Not only is the machine capable of meeting all the demands made in the most varied of inspection departments, but as it only costs £5 5s., it should prove economical as a time-saver, apart from the satisfaction it should give in legible and clear markings.

FLIGHT.

44, ST. MARTIN'S LANE, LONDON, W.C.

Telegraphic address: Truditur, London.

Telephone: 1828 Gerrard.

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